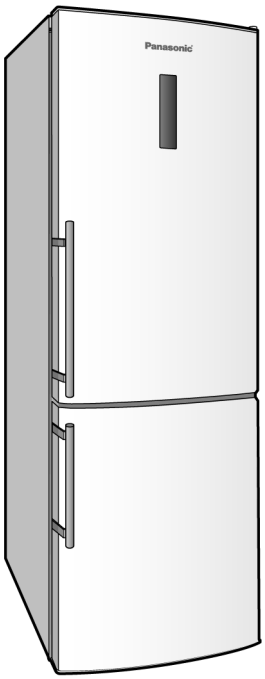
Order Number GORR1405001CE

Service Manual

REFRIGERATOR-FREEZER



Model No. NR-BN34FX1

Model No. NR-BN34FW1

Product-Color X:Stainless
W:White

Destination E(Europe Continental)
B(U.K.)

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

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1 Safety Precautions

The following are instructions that you must follow in order to prevent accidents during work, and to ensure the safety of the repaired product.
Hazard and damages that may result from ignoring instructions are classified and explained, below.

⚠Danger	**This section warns of the urgent danger of death or serious injury.**
⚠Warning	**This section warns of the risk of death or serious injury.**
⚠Caution	**This section warns of the risk of injury or damage to property.**

The following labels describe the types of rules that need to be followed.

⚠	**This label shows a "reminder" action to be paid attention to.**
⃠	**This label shows a "prohibited" action.**
❗	**This label shows a "compulsory" action to be followed without fail.**

⚠ Danger	
❗	**Be sure to discharge remaining refrigerant from the refrigeration unit.**
❗	**Discharge refrigerant outdoors where there is no fire source.** Be sure to instruct the customer not to approach the place of discharge and not to use fire.
❗	**Always use a pipe cutter for removing pipes.** If you use a welding machine, the refrigerant remaining in the pipe or compressor could catch fire and explode.
❗	**Pipes must be blown out with nitrogen before welding, to discharge any remaining refrigerant.**
❗	**Always use the swage lock for sealing after filing with refrigerant.** If you use a welding machine, the refrigerant could catch fire and explode.
❗	**Ventilation close to the floor surface is required, as the refrigerant(R600) is heavier than air.** In particular, the basement must be adequately ventilated.
❗	**"Measurement/adjustment of refrigerant refill quantity" in a service must be performed outdoors where there is no fire source.** Otherwise, you could run the risk of fire/explosion.
❗	**Use always a gas alarm.** If any refrigerant remains in work area, there will be a risk of fire/explosion.
⃠ Prohibited	**Never use a naked flame in a place where any refrigerant might remain.**
⃠ Prohibited	**Do not leave the removed faulty compressor in doors.**

⚠ Warning

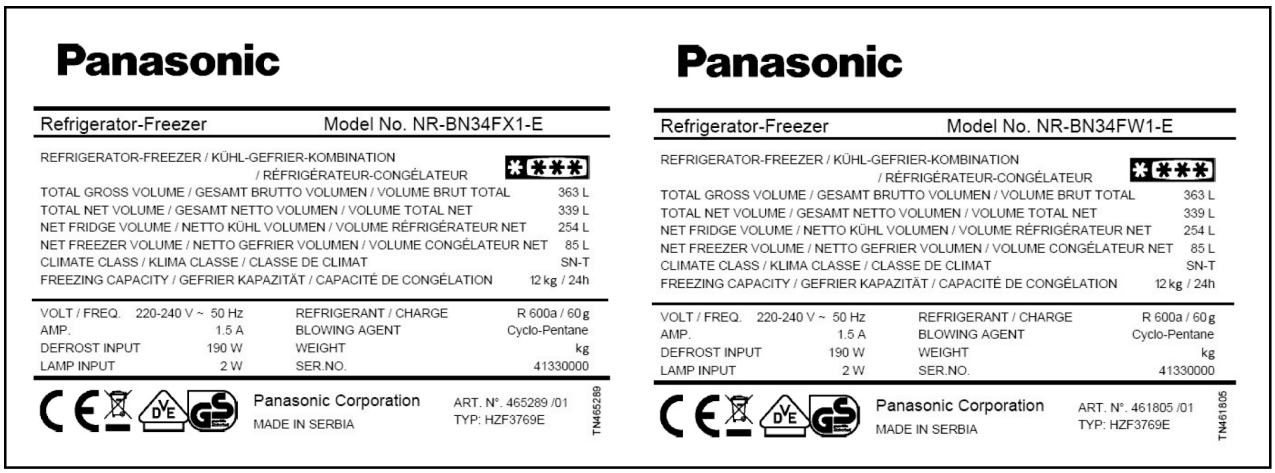
Remove power plug	**Before repair** make sure to cut off the power line before disassembly, parts replacement and assembly. Otherwise, electrical shock or injury may occur.
Electric shock hazard	**Be careful of electrical shocks** Be careful of electric shock from live parts or electrical lead terminal when conducting voltage measurement and other electrical servicing. Voltage of the control board is approximately 280V when power is ON. Do not touch live parts. When replacing parts, do not touch live parts for at least 3 minutes after disconnecting the plug the power supply. (A little time is required for electrical discharge of the condenser)
	Use only fuses specified When replacing fuses, use only specified in the circuit diagram. The use of non-specific fuses may cause fire or malfunction.
	Punch the pipes of the faulty compressor securely Otherwise, the refrigerant remaining in the compressor oil might leak out during transporting and could catch fire and explode.
	Discharge refrigerant completely from the used service can for disposal in an outdoor place where there is no fire source. Otherwise, you could run the risk of fire/explosion
Prohibited	**Do not damage the refrigeration circuit (piping) of the refrigerator.** As the refrigerant is flammable, any damage could lead to fire/explosion.
	If the refrigeration circuit is damaged, do not touch the refrigerator or use a naked flame. Open windows for ventilation. As the refrigerant is flammable, any damage could lead to fire/explosion.
	Disposal of a faulty compressor must be performed outdoors where there in no fire source.
	The quantity of refrigerant in a service can carried in the vehicle must be the least possible, and below the [regulation] [regulated] limit. Keep the service can upright and below 40℃, (Quantity on board:1.5kg or below)
	Use a designated part Make sure to use a designated part when the part is marked (⚠) in circuit diagrams and parts lists. Otherwise, smoke, fire or failure occur.
	Always conduct a safety inspection after completing service And check the parts are reassembled correctly. Also confirm other fixings and wiring, for deterioration. Replace as required. Always use a ohmmeter to measure the insulating resistance between both terminals of the power plug and the earth terminal, and plug the power supply in after first confirming 1MΩ or above. When setting, check that the power cord or power plug is not jammed or pushed against the rear of the refrigerator. If the power cord or the power plug is damaged or loose, take appropriate measures such as replacing. If the pins of the plug or the area the pins attach to are dirty, make sure they are cleaned thoroughly.

⚠ Caution	
	Install and remove glass shelving securely to prevent risk of injury.
	When moving, raise the adjustable legs Dragging the refrigerator will damage the floor. For flooring that may become easily damaged put a productive board in place.
	Do not scrape the metal rails
 High temperature hazard	**Take care of very hot parts.** The compressor, pipes etc. can be very hot during operation and directly after stopping. Also, the heater can be very hot during power supply and immediately after power supply is stopped. Be careful not to bum yourself by touching very hot parts.
 High temperature hazard	**Take care of very hot parts after welding** Pipes etc. are very hot after welding. Be careful not to burn yourself by touching very hot parts.
	Take care when filling/discharging refrigerant. Liquid refrigerant directly touching the skin may cause frostbite.
	Take care of burrs Be careful not to cut yourself on metal or plastic burrs.
	Take care of condenser/evaporator fins Be careful not to injure yourself on the fin edges

2 Specifications

Model		NR-BN34FX1	NR-BN34FW1
Destination		Europe – U.K.	
Volume capacity	Total effective volume capacity	339 L	
	Fridge compartment (PC)	254L	
	Freezer compartment (FC)	85 L	
External dimensions	Width/ Depth/ Height (mm)	600 mm x 640 mm x 2,000 mm	
Installation size		side : 20 mm or more	
		Back : 50 mm or more	
		Top : 150 mm or more	
Power supply plug	Rating	250V/10A	
Power supply code	Length	2050 mm	
Interior lamp (LED)	Rating	230V/2W	
IEC protection against electric shock classes		Class I	
Climate Class		SN-T	
Fridge compartment sensor	PCC	ESCOP B57020-M2502	
Freezer compartment sensor	FCC	ESCOP B57020-M2502	
Ambient temperature sensor	ATC	Not used	
Defrost temperature sensor	DFC	ESCOP B57020-M2502	
Compressor	Model	Jiaxipera NB1114Y	
	Rotation speed	2930 rpm	
	Curled resistance cord (at 25°C)	Main wiring : 20.3 Ohm Aux wiring : 18.8 Ohm	
Overlord relay	Model	B50-120	
	Operating temperature without power	120 °C	
	Return temperature	61 °C	
	Operating current (A)	5A	
Fan motor	Model/Rating	BG1512,220/240V,50/60Hz,2W	
Dumper	Rating / Voltage	12VDC.60mA	
Defrost heater	Rating	190 W	
Thermal fuse	Class / Fill	Class II.72 ℃	
Oil charge		180ml	
Freezing ability		12 kg /24 H	
Values of the energy consumption		245kwh/year	
Energy efficiency grade		A++	
Refrigerant charge		R600a / 60g	
Measurement of exterior noise emitted		42 dB	
Form polyurethane		Cyclo - pentane	
Net weight (kg)	Without packaged	76kg	

Name Plate


Panasonic
Refrigerator-Freezer
Model No. NR-BN34FX1-E
REFRIGERATOR-FREEZER / KÜHL-GEFRIER-KOMBINATION / RÉFRIGÉRATEUR-CONGÉLATEUR
TOTAL GROSS VOLUME / GESAMT BRUTTO VOLUMEN / VOLUME BRUT TOTAL 363 L
TOTAL NET VOLUME / GESAMT NETTO VOLUMEN / VOLUME TOTAL NET 339 L
NET FRIDGE VOLUME / NETTO KÜHL VOLUMEN / VOLUME RÉFRIGÉRATEUR NET 254 L
NET FREEZER VOLUME / NETTO GEFRIER VOLUMEN / VOLUME CONGÉLATEUR NET 85 L
CLIMATE CLASS / KLIMA CLASSE / CLASSE DE CLIMAT SN-T
FREEZING CAPACITY / GEFRIER KAPAZITÄT / CAPACITÉ DE CONGÉLATION 12 kg / 24h
VOLT / FREQ. 220-240 V ~ 50 Hz
AMP. 1.5 A
DEFROST INPUT 190 W
LAMP INPUT 2 W
REFRIGERANT / CHARGE R 600a / 60 g
BLOWING AGENT Cyclo-Pentane
WEIGHT kg
SER.NO. 41330000
Panasonic Corporation
MADE IN SERBIA
ART. N°. 465289 /01
TYP: HZF3769E
TN465289
Panasonic
Refrigerator-Freezer
Model No. NR-BN34FW1-E
REFRIGERATOR-FREEZER / KÜHL-GEFRIER-KOMBINATION / RÉFRIGÉRATEUR-CONGÉLATEUR
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SER.NO. 41330000
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TN461805

3 Technical Descriptions

Single-compressor cooling system

On the basis of temperature checking with sensor in fridge compartment and temperature in freezer compartment, the request for switch-on/off of compressor and Fan Motor is set /deleted

Compressor operation
In normal mode of operation the compressor functions with the frequency which is prescribed with regard to the actual conditions of regulations.
The condition for compressor switch-on is not considered if the compressor is locked due to min switch-off time which is 5 minutes
The same is valid for compressor switch-off, when the compressor does not switch off until the min switch-on time is reached which is 5 minutes.

PC Damper operation
The PC Damper can be opened only to the extreme position, or completely closed.
At switching-on it is necessary to set the PC Damper, so that it can be opened and closed. It is reset when the parameter “max time of PC Damper position” which is 6 hours, expires. This time is considered when the PC Damper is in one position, open or closed.
It is not possible to set the PC Damper during defrosting.
Whenever the PC Damper opens, the Fan Motor starts to function.
When the PC Damper is closed, the Fan Motor operates according to its regulation.
Opening or closing any door does not affect the PC Damper operation.

Fan Motor operation
The Fan Motor switches on when the request is made for cooling of fridge or freezer compartment. When a request is made for cooling of fridge compartment, first the PC Damper opens and after 30 seconds, the Fan Motor switches on.
Fan Motor switches on with time delay after the compressor start-up - depending on the last cycle.
If the last cycle was a normal cycle, the Fan Motor switches on immediately.
After defrosting of the evaporator, the Fan Motor starts to function after 4 minutes.
Fan Motor operation is suspended if the freezer or refrigerator door is opened.
When the door is closed, the Fan Motor switches-on after 5 seconds.
If the door is open for 20 minutes, normal operation of Fan Motor continues as prescribed by regulation of cooling.

LED Lamp
Fridge compartment LED Lamp switches on when the door opens.
Fridge compartment LED Lamp switches off when the door closes.
In case of open door, the incorporated time limitation becomes active which switches off the LED Lamp after 10 minutes

Condition for cooling of fridge compartment (PC)
The temperature in fridge compartment can be set from +1 to +9 °C.
Based on the verification of the temperature in fridge compartment, the request for cooling of fridge compartment is set or deleted.
When the temperature in fridge compartment is equal to or rises above +1 °C, the PC Damper opens and after 30 seconds (Fan Motor switch-on delay time due to PC Damper switch-on) the Fan Motor in freezer compartment switches on, too.
When the temperature in fridge compartment is lower than +1 °C, the PC Damper closes, and in case the request for cooling of freezer compartment is not set, the Fan Motor in freezer compartment switches off.
On the basis of request for cooling of fridge compartment, the PC Damper and Fan Motor in the freezer compartment switch on.

Condition for fridge of freezer compartment (FC)

Standard compressor

The temperature in freezer compartment can be set from -16°C to -24°C.
It operates according to the principle of setting/deleting the request for cooling of freezer compartment.
When the temperature in the freezer compartment is equal to or rises above +1 ° C, the compressor and Fan Motor (in normal operation) switch on or, after the expiry of Fan Motor switch-on delay time after defrosting, the Fan Motor of freezer compartment switches on, too.
When the temperature in freezer compartment is lower than 0 ° C, the request for cooling of freezer compartment is deleted; the compressor and Fan Motor of freezer compartment switch off.
Based on request for cooling of freezer compartment the compressor and Fan Motor of freezer compartment are controlled.

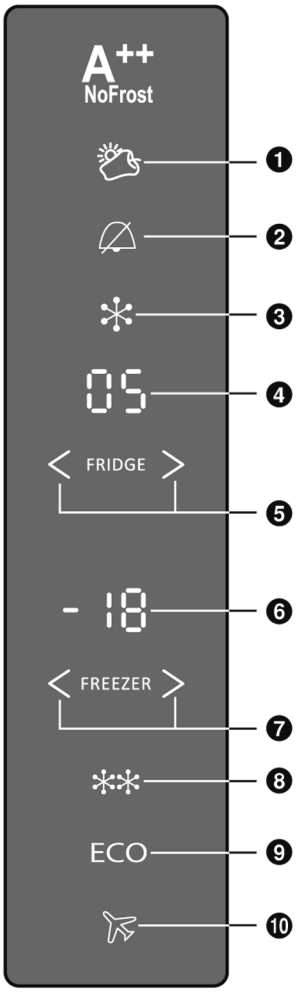
Defrosting

Unconditional start of defrosting is installed in the following cases:

1. At switch-on of "Fast Freeze" function if the compressor of freezer compartment does not function.
2. At switch-on of "Super Cool" function if the compressor of freezer compartment does not function.
3. At switch-on of "Extreme Freeze" function if the compressor of freezer compartment does not function
4. If, at switch on of "Fast Freeze" or "Super Cool" function the compressor functions without interruption for 1 hour i.e. immediately after the first interruption of operation of compressor.
5. Always after the terminated "Super Cool", "Extreme Freeze" and "Fast Freeze" function.
6. In case when the user interrupts the "Fast Freeze" function later than in 8 h after switching-on this function.

4 Location of Controls and Components

4.1. Display and Control Panel



❶ **Vitamin LED Mode button (model NR-BN34FX1/FW1 only)**

❷ **Alarm button/indicator and Child safety lock button**
- When the temperature inside is too high, the indicator flashes.
- When the doors is open for a long time, the indicator flashes.

❸ **Super Cool Mode button**

❹ **Fridge temperature display**
- During Child safety lock Mode, “LL” appears.
- During Super Cool Mode, “SC” appears.

❺ **Fridge temperature button**

❻ **Freezer temperature display**
- During Super Freeze Mode, “SF” appears.
- During Flash Freeze Mode, “FF” appears.
- During Child safety lock Mode, “LL” appears.

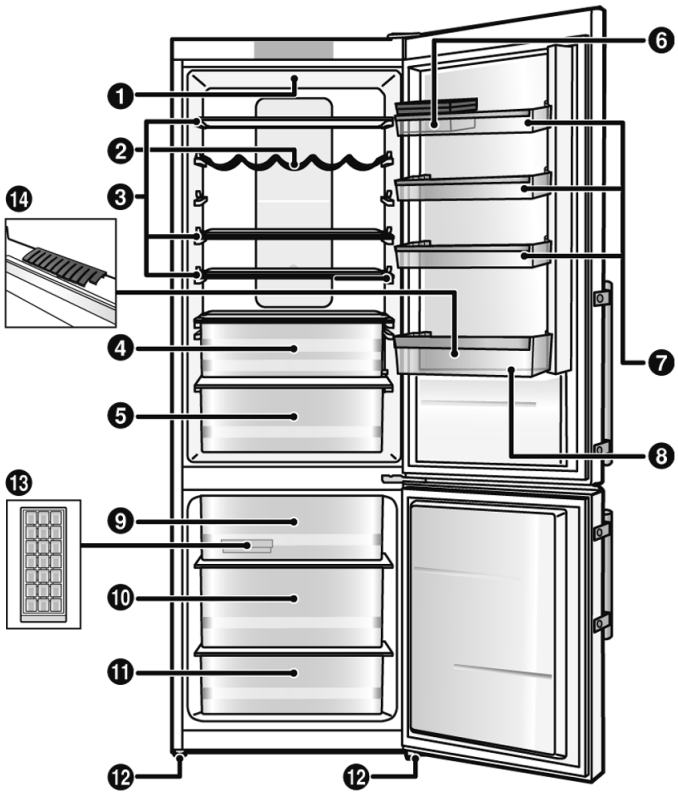
❼ **Freezer temperature button**

❽ **Super Freeze Mode/Flash Freeze Mode button**

❾ **ECO Mode button**

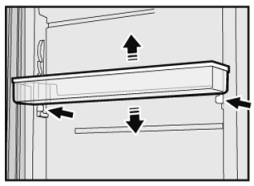
❿ **Holiday Mode button**

4.2. Components



- "Multibox" storage box ❻ has a lid and offers a convenient way for storing food with a strong or pungent smell, e.g. ripened or blue-vein cheese, sausages, onions, butter etc.
- The lid can also be used as an egg or ice tray.
- If the lid is used as an egg tray, place it directly on the bottom of the door shelf and use the open lower part of the "Multibox" storage box to store food in smaller packages- pate, jams, smaller tubes etc.

The height of shelves ❼ can be adjusted to your preferences without having to take them out of the appliance. Pull the two levers on either side of the shelf towards you and move the shelf down. If you wish to set the shelf higher, you can do so without releasing the two levers.



❶ **LED lighting of fridge interior**
❷ **Bottle rack**
❸ **"Slide'N'Store" Glass shelf**
❹ **Chiller Case**
❺ **"Fresh Case" crisper**
❻ **"Multibox" storage box**
❼ **"FlexLift" height adjustable door shelf**
❽ **Bottle shelf**
❾ **Freeze drawer with "Flash Freeze" function**
❿ **Freeze drawer**
⓫ **Freeze drawer**
⓬ **Legs**
⓭ **Ice Tray (model NR-BN34FX1/FW1 only)**
⓮ **Bottle stopper**

Note:

- You can change the positions where the Glass shelves, Door shelves and Bottle shelf are installed. Please use caution, however, because stored food and beverages could fall out when the door is opened and closed depending on the shelf positions.

5 Installation Instructions

This section explains how to install your appliance for the most energy-efficient, safe and quiet operation.

Dimensions

W600 x D650 x H2000 (mm)

Unpacking your appliance

Remove all packaging and tape.

Choosing the right location

Ventilation

As the appliance gives off heat during operation, it should be installed in a well-ventilated, dry room with plenty of space above and behind it, as shown in Figure 1.
If you can hear it vibrating, it needs more space.

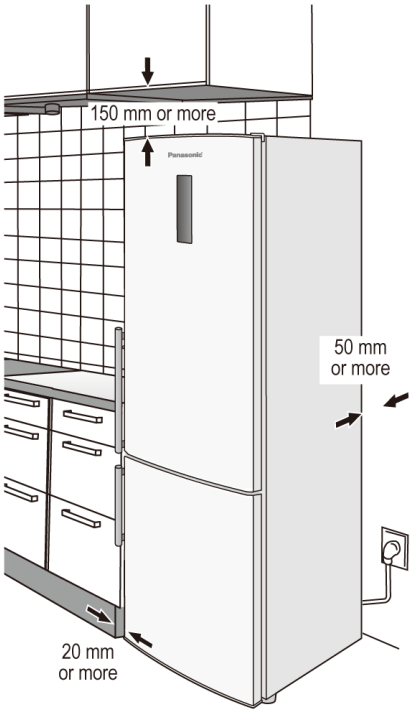


Figure 1

Temperature

The room temperature affects the refrigerator's energy-efficiency, i.e. how much electricity it uses to chill and freeze foods.
For the best results, install your refrigerator:

- away from direct sunlight
- away from radiators, cookers or other heat sources
- where the room temperature corresponds to the climate classification for which the appliance is designed. Refer to the Specifications Section for your appliance's climate classification.
- Extreme temperatures or environmental conditions may have negative impact on its performance.
  Stored food may spoil.

Level

Install on a level floor that's strong enough to support a fully loaded refrigerator.

You can adjust the level of the refrigerator by screwing or unscrewing the two adjustable front legs as shown in Figure 2.
This prevents vibration and noise.

If the appliance is to stand on a carpeted or vinyl floor, put a solid board underneath it first. This will protect your floor against possible colour change due to heat given off by the appliance.

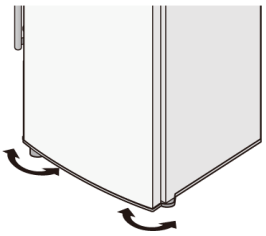


Figure 2

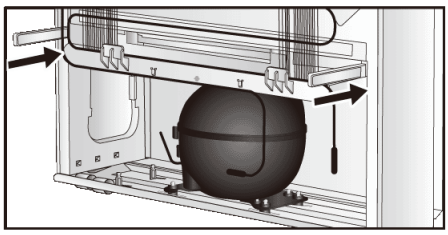
Refrigerator door

WARNING

The refrigerator's door hinges can be swapped over, from the right side to the left, so that the doors open in the opposite direction. If this is more convenient in your home, please contact our service centre listed on the attached sheet or access to our Web site (http://panasonic.net).
We could not be held responsible if you replace the hinges by yourself.

Installing the distance guides

The appliance is supplied with two distance guides which should be installed on the lower part of the housing to prevent from pushing the appliance too close to the wall. Appliance may also be installed without the spacers; however, this may increase power consumption.



Cleaning

After installation, wipe the appliance clean with warm water.

Connecting the mains plug to the household mains socket

After the appliance is plugged, all symbols will appear for a moment, and then the startup values will appear as -18 °C on freezer setting indicator and 5 °C on fridge setting indicator.
All buttons on the control panel are touch-operated. (Only press to activate the button you want to operate.)

Notes:

- Cooling may take longer in the summer months or at other times when the room temperature is higher.
- If you need to unplug the refrigerator, wait at least 10 minutes before you plug it back in again. If not, you might damage the compressor.

Ambient room temperature

You'll find your refrigerator's climate classification on the rating plate in the left side of the fridge compartment. It shows the room temperature the appliance is designed to work in.

Climate classification		Permitted ambient temperature
SN	(Extended Temperate)	+10 °C to 32 °C
N	(Temperate)	+16 °C to 32 °C
ST	(Subtropical)	+16 °C to 38 °C
T	(Tropical)	+16 °C to 43 °C

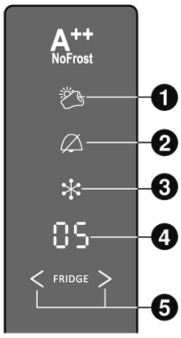
For saving energy

1. Install the refrigerator in a dry, cool and well-ventilated location. The colder the ambient temperature, the better the efficiency. (Please refer to Page 5 for dimensions and clearance.)
2. The combination of drawers and shelves that result in the largest in volume and the most efficient use of energy for the refrigerator.
   - Remove the freezer drawers.
   - Attach the drawers and shelves in the refrigerator to the positions illustrated on the section of "Parts" (P.9).
3. Do not over fill the refrigerator to allow the air to circulate.
4. Open the doors only when necessary and as briefly as possible.
5. Occasionally clean the ventilation openings at the bottom of the refrigerator with a vacuum cleaner, etc. (Take care not to damage the refrigerant pipe inside the cover.)
6. When setting to Super Freeze Mode, Flash Freeze Mode or Super Cool Mode, power consumption will be increased.

6 Operating Instructions

6.1. Setting the temperature

6.1.1. Fridge compartment (PC)

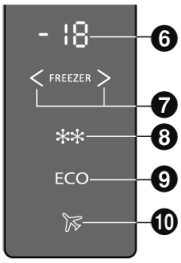


- To set the temperature in the fridge compartment use the keys ❺: < lower temperature; > higher temperature.
- Temperature in the fridge compartment can be set from +1 °C to +9 °C.
- After one of the ❺ keys is pressed, the most recent temperature setting will flash on the display ❹. Use the ❺ keys to set the desired temperature.
  Three seconds after the last key was pressed, the most recent temperature setting is stored for the fridge compartment.

Note:

- When Super Cool Mode, Super Freeze Mode, Flash Freeze Mode, ECO Mode or Holiday Mode ends or is cancelled, the unit returns to its previous settings.

6.1.2. Freezer compartment (FC)

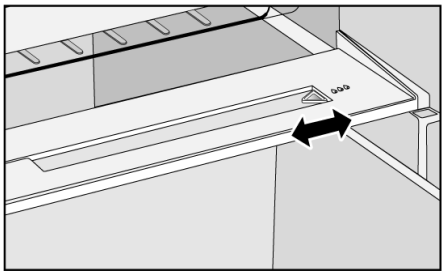


- To set the temperature in the freezer compartment use the keys ❼: < lower temperature; > higher temperature.
- Temperature in the freezer compartment can be set from -24 °C to -16 °C.
- After one of the ❼ keys is pressed, the most recent temperature setting will flash on the display ❻. Use the ❼ keys to set the desired temperature. Three seconds after the last key was pressed, the most recent temperature setting is stored for the freezer compartment.

Note:

- When Super Cool Mode, Super Freeze Mode, Flash Freeze Mode, ECO Mode or Holiday Mode ends or is cancelled, the unit returns to its previous settings.

6.1.3. Fresh Zone Crisper

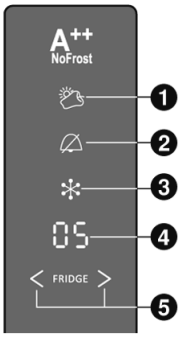


- The bin at the bottom of the refrigerator is intended for storing fruit and vegetables. It keeps humidity and prevents the food from drying out.
- Store the food in suitable packaging to prevent them from emitting or taking on odors.
  The bin has integrated humidity regulator which allows setting the humidity according to the amount of food stored.

Smaller amounts of food - push the control slider to the right.
Larger amounts of food - push the control slider to the left.

6.2. Functions

6.2.1. Vitamin LED Mode

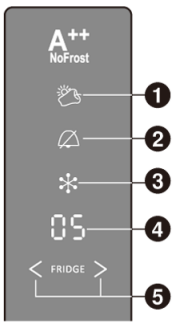


- Setting this mode helps to protect the vitamin C contained in vegetables and fruit. The blue and green LED lights.
  To activate the Vitamin LED function, press the ❶ key.
  The ❶ key lights up. With this function activated, appliance will operate with optimum settings.

Notes:

- During this mode:
  -By pressing the ❶ key ,Vitamin LED Mode will be cancelled.

6.2.2. Super Cool Mode



- Use this setting after switching on the appliance for the first time, before cleaning, or before inserting a large amount of food.

Switching on Super Cool Mode function:

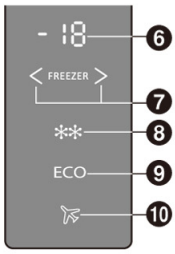
Press the ❸ key. “SC” will appear on the display ❹.

If the function is not deactivated manually, it will be deactivated automatically after approximately six hours. Fridge compartment temperature will return to the most recent setting.

Notes:

- During this mode:
  - -By pressing the ❸ key, Super Cool Mode will be cancelled.
    ECO mode, Holiday Mode can be selected.
  - -If either of those functions is selected, Super Cool Mode will be cancelled.
  - -The freezer temperature can be adjusted.
  - -Although the fridge temperature can also be adjusted, Super Cool Mode will be cancelled.

6.2.3. Super Freeze Mode



- Use this setting after switching on the appliance for the first time, before cleaning, or 24 hours before inserting a large amount of food.

Switching on the Super Freeze function:

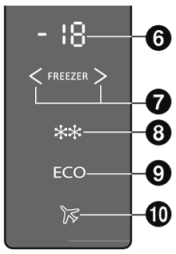
Press the ❽ key. “SF” will appear on the display ❻.

If the Super Freeze Mode is not deactivated manually, it will be automatically switched off after approximately two days. Then the temperature of the freezer compartment returns to the most recently set value.

Notes:

- During this mode:
  - -By pressing the ❽ key, Super Freeze Mode will be cancelled.
    ECO mode, Holiday Mode can be selected.
  - -If either of those functions is selected, Super Freeze Mode will be cancelled.
  - -The fridge temperature can be adjusted.
  - -Although the freezer temperature can also be adjusted, Super Freeze Mode will be cancelled.

6.2.4. Flash Freeze Mode



- In order to quickly freeze fresh food, use the Flash Freeze Mode function that is only active in the upper drawer of the freezer compartment. It involves intensive blowing of cool air in that part of the appliance. Faster freezing will retain more vitamins, minerals, and nutrients in the food for a longer period of time.

Switching on the Flash freeze Mode function:

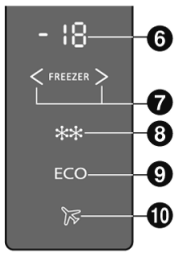
Press the ❽ key and hold it for at least three seconds. “FF” will appear on the display ❻.

- With this setting, the compressor will operate continuously and the temperature in the freezer compartment will drop considerably.
- If the setting is not deactivated manually (by pressing the ❽ key), it will be deactivated automatically after 8 hours. Freezer compartment temperature will return to the most recent setting.
- Use this setting for freezing smaller amounts of food (up to two kilograms) in the upper drawer. When freezing a large amount of food, the setting should be activated 12 hours before the food is placed in the freezer.

Notes:

- During this mode:
  - -By pressing the ❽ key, Flash Freeze Mode will be cancelled.
    ECO mode, Holiday Mode can be selected.
  - -If either of those functions is selected, Flash Freeze Mode will be cancelled.
  - -The fridge temperature can be adjusted.
  - -When the Super Cool Mode is activated, this mode cannot be selected.

6.2.5. ECO Mode

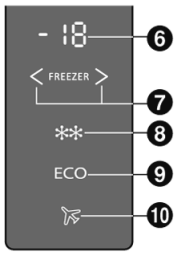


- In this mode, the control unit operates the freezer and fridge economically.
  To activate the Eco Mode function, press the ❾ key. The ❾ key lights up. With this function activated, appliance will operate with optimum settings.

Notes:

- During this mode:
  -The temperature of the fridge and freezer cannot be adjusted. ECO Mode will be cancelled and the selected temperature will be set.
  -Super Cool Mode, Super Freeze Mode or Flash Freeze Mode can be selected.
  If either mode is selected, ECO Mode will be cancelled and the selected mode will become active.
  -Holiday Mode can be selected.
  If it is selected, ECO Mode will be cancelled and Holiday Mode will become active.

6.2.6. Holiday Mode



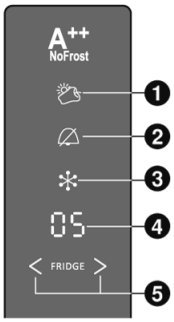
- Set this mode when the fridge in not going to be used for a prolonged period such as during a long vacation.
- In this mode, the fridge temperature is automatically set to 12 °C. (Fridge temperature display turns off.)

To activate the Holiday Mode function, press the ❿ key. The ❿ key lights up. With this function activated, appliance will operate with optimum settings.

Notes:

- During this mode:
  -Before using this mode, empty out the fridge, and close door.
  -When this mode is ended, the fridge will resume operation with its previous settings.
  -The fridge temperature cannot be adjusted until this mode is cancelled.
  -When the door is opened, alarm will be activated.

6.2.7. Alarm Mode



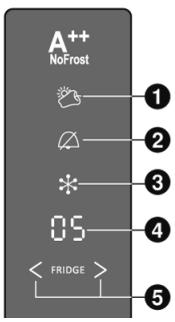
High temperature alarm:

- If the temperature inside the appliance is too high, acoustic alarm will be activated (intermittent tone) and the ❷ key will flash.
- Acknowledge and turn off the acoustic alarm by pressing the ❷ key.
- The acoustic alarm will be activated every 24 hours if the temperature in the appliance is not low enough and there is danger of food spoilage.
  The alarm will be switched off automatically as soon as the temperature in the freezer drops to a level that no longer presents spoilage hazard.
- When the appliance is switched on for the first time, there is a 24-hour delay in temperature alarm operation since the appliance will not have reached the adequate temperature.
  Thus, unnecessary activation of alarm is prevented.

Open refrigerator door alarm:

- If the refrigerator or freezer compartment door is open for more than two minutes, acoustic alarm will be activated and the ❷ key will flash.
  When the door is closed, the alarm will be deactivated. It can also be switched off by pressing the ❷ key.

6.2.8. Child safety lock



Use this function if you do not wish to manually adjust the appliance settings.
To activate, press and hold the ❷ key (for three seconds). “LL” will appear on the display ❹ and ❻.
This will lock all keys except ❷.
To deactivate the safety lock, press the ❷ key and hold it for three seconds.

Note:

- “LL” is not displayed while this function is activated. However, “LL” will appear in a second by pressing any key.

7 Service Mode

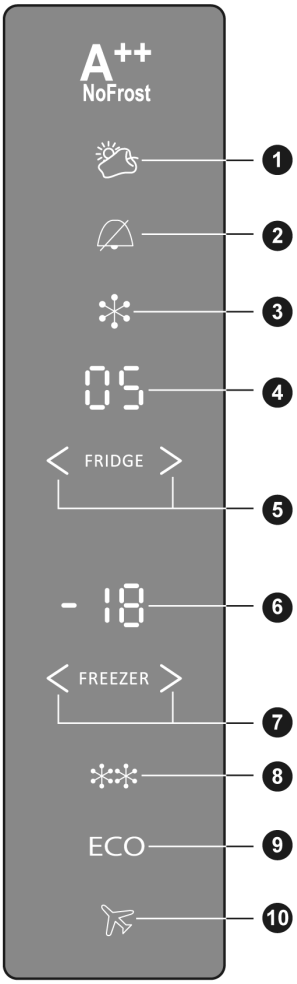
7.1. Service mode of operation

General

- Service mode is intended for service interventions
- In service mode it is possible to select optionally among the outputs
- From service mode we always enter normal mode of operation

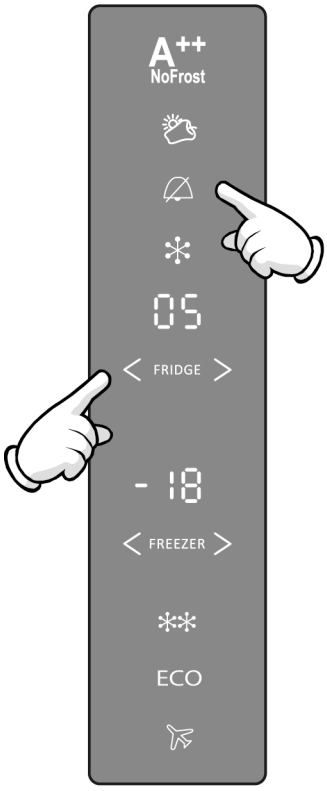
Display Panel A'ssy

Display Panel A'ssy on appliance door



1 – Key for vitamin LED operation switch-on/off
2 – Key for sound alarm switch-off
3 – Key for intensive fridge switch-on/off
4 – Display of fridge compartment set temperature
5 – Keys for fridge compartment temperature setting
6 – Display of freezer compartment set temperature
7 – Keys for freezer compartment temperature setting
8 – Key for intensive and extreme (Flash) freezer switch-on/off
9 – Key for ECO operation switch-on/off
10 – Key for holiday operation switch-on/off

7.1.1. How to start



When both the alarm button and the button next to “Fridge” on display panel are pressed more than 3 seconds and Service mode will start.

In normal operation

Start of Service Mode

Then pressing button next to “Fridge” on the display panel, 10 kinds of checking are available.

7.1.2. How to stop

It ends when the alarm button and the button next to “Fridge” on display panel are pressed more than 3 seconds or 15 minutes after starting self diagnosis mode, it ends automatically.

7.1.3. Summary of Service Mode

Display on Fridge Temp.	Check	Press button: xx (blinking)	Press button: xx (No blinking)
00	Main PCB	-	Software version No.
01	Display Panel PCB	-	Software version No.
02	Compressor	02	OFF	ON
03	Fan Motor	03	OFF	ON
04	Defrost Heater	04	OFF	ON
05	PC Damper	05	CLOSE	OPEN
06	LED lamp	06	OFF	ON
07	PC Temp. Sensor	-	Display Sensor Temp.
08	FC Temp. Sensor	-	Display Sensor Temp.
09	Defrost Sensor	-	Display Sensor Temp.
10	Vitamin LED	10	OFF	ON

7.1.4. Service Mode “00” (Main PCB)

When “00” appears in fridge temp. display, service mode starts.
Press button on the display panel,
Software Version No. of main PCB can be checked.

Software Version No.

30 - 0 - 02

(Example)
“30” ⇨“-” ⇨ “0” ⇨ “-” ⇨“02”

Start of Service Mode

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “01”.

7.1.5. Service Mode “01” (Display Panel PCB)

When “01” appears in fridge temp. display,
Press button on the display panel,
Software Version No. of control panel PCB can be checked.

Software Version No.

30 - 0 - 05

(Example)
“30” ⇨“-” ⇨ “0” ⇨ “-” ⇨“05”

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “02”.

7.1.6. Service Mode “02” (Compressor)

When “02” appears in fridge temp. display.
Press button on the display panel, blinking will stop and then Compressor starts Running .

Compressor is OFF

Compressor is ON

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “03”.

7.1.7. Service Mode “03” (Fan Motor)

When “03” appears in fridge temp. display.
Press button on the display panel, blinking will stop and then Fan Motor starts Running .

Fan Motor is OFF

Fan Motor is ON

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “04”.

7.1.8. Service Mode “04” (Defrost Heater)

When “04” appears in fridge temp. display.
Press button on the display panel, blinking will stop and
then Defrost Heater starts Heating .

Defrost Heater is OFF

Defrost Heater is ON

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “05”.

7.1.9. Service Mode”05” (PC Damper)

When “05” appears in fridge temp. display.
Press button on the display panel, blinking will stop and
then PC Damper is Open.

PC Damper is CLOSE

PC Damper is OPEN

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “06”.

7.1.10. Service Mode “06” (LED Lamp)

When “06” appears in fridge temp. display.
Press button on the display panel, blinking will stop and then LED Lamp is ON.

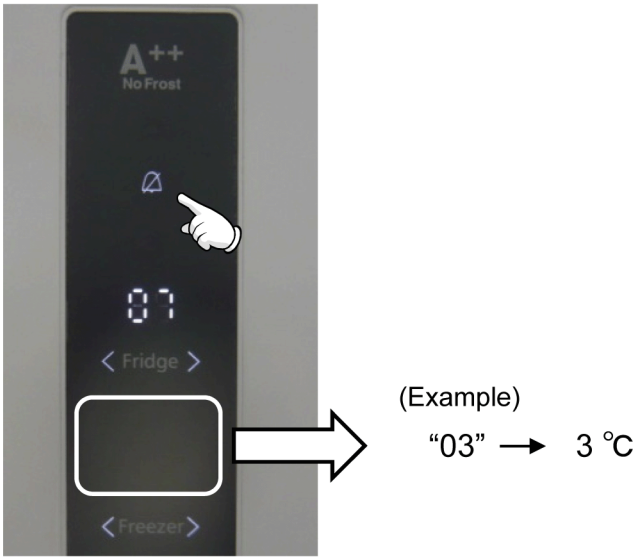
LED Lamp is OFF

LED Lamp is ON

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “07”.

7.1.11. Service Mode “07” (PC Temp. Sensor)

When “07” appears in fridge temp. display.
Press button on the display panel, blinking will stop and
then Temperature of PC Temp. Sensor can be checked .



Then press button next to “Fridge” on the display panel,
it will change to Next service mode “08”.

7.1.12. Service Mode “08” (FC Temp. Sensor)

When “08” appears in fridge temp. display.
Press button on the display panel, blinking will stop and
then Temperature of FC Temp. Sensor can be checked .

(Example)
“-18” → -18 ℃

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “09”.

7.1.13. Service Mode “09” (Defrost Sensor)

When “09” appears in fridge temp. display.
Press button on the display panel, blinking will stop and
then Temperature of Defrost Sensor can be checked .

(Example)
“-24” → -24 ℃

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “10”.

7.1.14. Service Mode “10” (Vitamin LED)

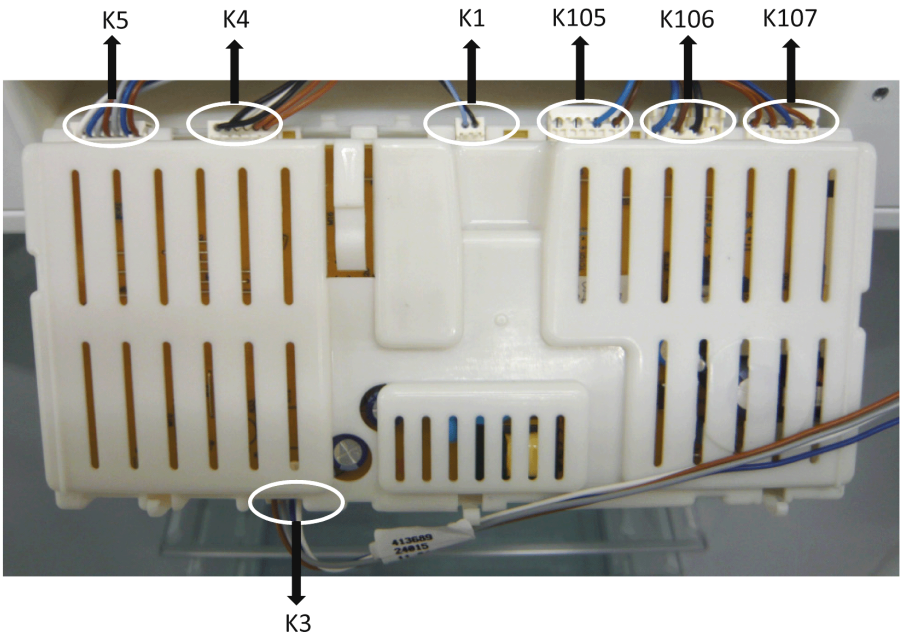
When “10” appears in fridge temp. display.
Press button on the display panel, blinking will stop and then Vitamin LED turns ON.

LED Lamp is OFF

LED Lamp is ON

Then press button next to “Fridge” on the display panel,
it will change to Next service mode “00”.

7.2. Measuring Points on Main PCB Box



K5 – connection of PC Damper and FC Door Switch
K4 – connection of Temperature sensors
* FC Temp. Sensor, colour of conductors: black
* PC Temp. Sensor, colour of conductors: white
* Defrost Sensor, colour of conductors: brown
K105 – Defrost Heater, Thermal Fuse (288,2 Ohm, ±5%)
K106 – Supply connection, Compressor
K107 – LED Lamp, Fan Motor
K3 – Display Panel PCB
K1 – Vitamin LED

Note: For more detail, refer to the Schematic Diagram on page 45.

7.3. Value of Temperature sensors

T (℃)	R (kΩ)
-35	122,80
-34	115,10
-33	108,00
-32	101,20
-31	95,03
-30	89,24
-29	83,83
-28	78,79
-27	74,09
-26	69,70
-25	65,58
-24	61,75
-23	58,32
-22	54,81
-21	51,66
-20	48,72
-19	45,97
-18	43,39

T (℃)	R (kΩ)
-17	40,96
-16	38,69
-15	36,56
-14	34,56
-13	32,68
-12	30,92
-11	29,25
-10	27,70
-9	26,24
-8	24,85
-7	23,55
-6	22,33
-5	21,18
-4	20,09
-3	19,07
-2	18,10
-1	17,19
0	16,33

T (℃)	R (kΩ)
1	15,52
2	14,75
3	14,02
4	13,33
5	12,69
6	12,07
7	11,49
8	10,94
9	10,43
10	9,93
11	9,47
12	9,03
13	8,61
14	8,21
15	7,84
16	7,48
17	7,14
18	6,82

T (℃)	R (kΩ)
19	6,52
20	6,23
21	5,95
22	5,69
23	5,44
24	5,21
25	4,98
26	4,77
27	4,57
28	4,38
29	4,19
30	4,02
31	3,85
32	3,69
33	3,54
34	3,39
35	3,26

7.4. Operation in case of failure

Failure of magnetic switch (LED Lamp)
In case of failure of magnetic door switch, the LED Lamp stays switched on for 10 minutes, even when door is closed. During this time the appliance is operating normally and in accordance with the settings.

Failure of Temperature Sensors
Fridge compartment (PC)
Failure of PC sensor in fridge compartment: time algorithm is installed which sets and deletes the request for cooling of fridge compartment i.e. opening of the PC Damper:

- for 15 minutes the PC Damper is open
- for 30 minutes the PC Damper is closed

When the PC Damper opens, the Fan Motor switches on and when the PC Damper closes, the Fan Motor switches off. Display for Fridge
temperature displays "E1".

Freezer compartment (FC)
Failure of FC sensor in freezer compartment: display shows "E3". The request for cooling of freezer compartment i.e. switch on/off of compressor and Fan Motor is activated in cycles:

- 15 minutes ON.
- 40 minutes OFF.

If the request for Fan Motor operation in one compartment is interrupted and other compartment requires Fan Motor operation, the Fan Motor functions.

Freezer compartment evaporator
Failure of Defrost sensor on freezer compartment evaporator: start of defrosting according to the prescribed total time of compressor operation. Defrosting is carried out normally, but the temperature at which the Defrost heater switches off, is +8°C.

Failure of fridge and freezer compartment Temperature sensor at the same time
In this case the display of temperature in fridge compartment shows "E1" and the display of temperature in freezer compartment shows "E3".

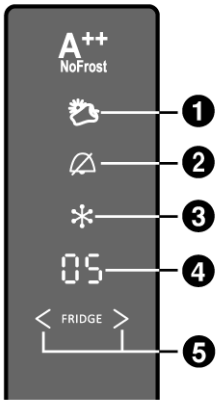
On models with one-digit temperature display in fridge compartment, "E" and "1" are shown alternately, with 1-second interval while the regulations function each one in accordance with their time regime.

Alarms
Alarms of too high temperature in fridge/freezer compartment
In case the temperature in fridge compartment exceeds +13 ° C and in freezer compartment -9 ° C, the high temperature alarm will be activated:

- sound alarm is heard, the key for cancellation of alarm is flashing with frequency 1 Hz (0.5 seconds ON and 5 seconds OFF), and on the display, depending on the compartment in which the temperature has raised above the alarm temperature, the set temperature is flashing.
- Sound alarm is the interrupted buzzer sound: 15 seconds ON and 15 seconds OFF in the first 5 minutes every hour.
- Sound alarm is cancelled by pressing the key for cancellation of the alarm.
- Flashing of key and set temperature remains active until the appliance has cooled down and the temperature drops below the alarm value.
- If within 24 hours after the cancellation of the sound alarm the appliance does not cool down below the alarm temperature, the sound alarm is activated again.

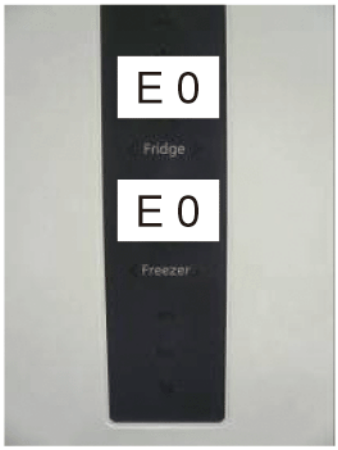
Alarm due to power supply failure (blackout) during appliance operation
In case that during a power failure the appliance has heated up to the alarm temperature (+13°C in fridge or -9°C in freezer compartment), after the restoration of power supply, the alarm of too high temperature is activated.
In case the alarm of too high temperature is activated due to power supply failure, unlike in case of too high temperature alarm, the number -16 on freezer or +9 on refrigeration display start flashing. In this case the alarm is active until user’s cancellation.

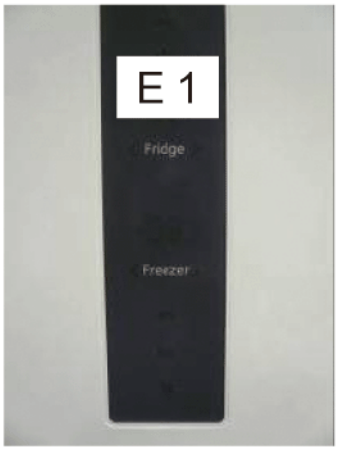
Open door alarm
If the door of fridge or freezer compartment is open for more than 2 minutes, the uninterrupted buzzer sound will be heard and the key "2" for cancellation of the alarm will be flashing.
When the door is closed, the alarm is canceled.
The sound alarm can also be cancelled by pressing the key "2"; the key flashes until the door is closed.



Child lock
The function is activated by long press on the key "2" for cancellation of the alarm, the display shows "LL".
By pressing any key, the display will show "LL"; when the key is released, the display shows set temperature.
"Child lock" is cancelled by long press on the key "2".
In case the alarm is activated, it can be cancelled with alarm cancellation key without having to leave the "Child lock" mode.

Error display





E 0	Communication error between Display panel and PCB
E 1	Defect of PC temperature Sensor
E 3	Defect of FC temperature Sensor

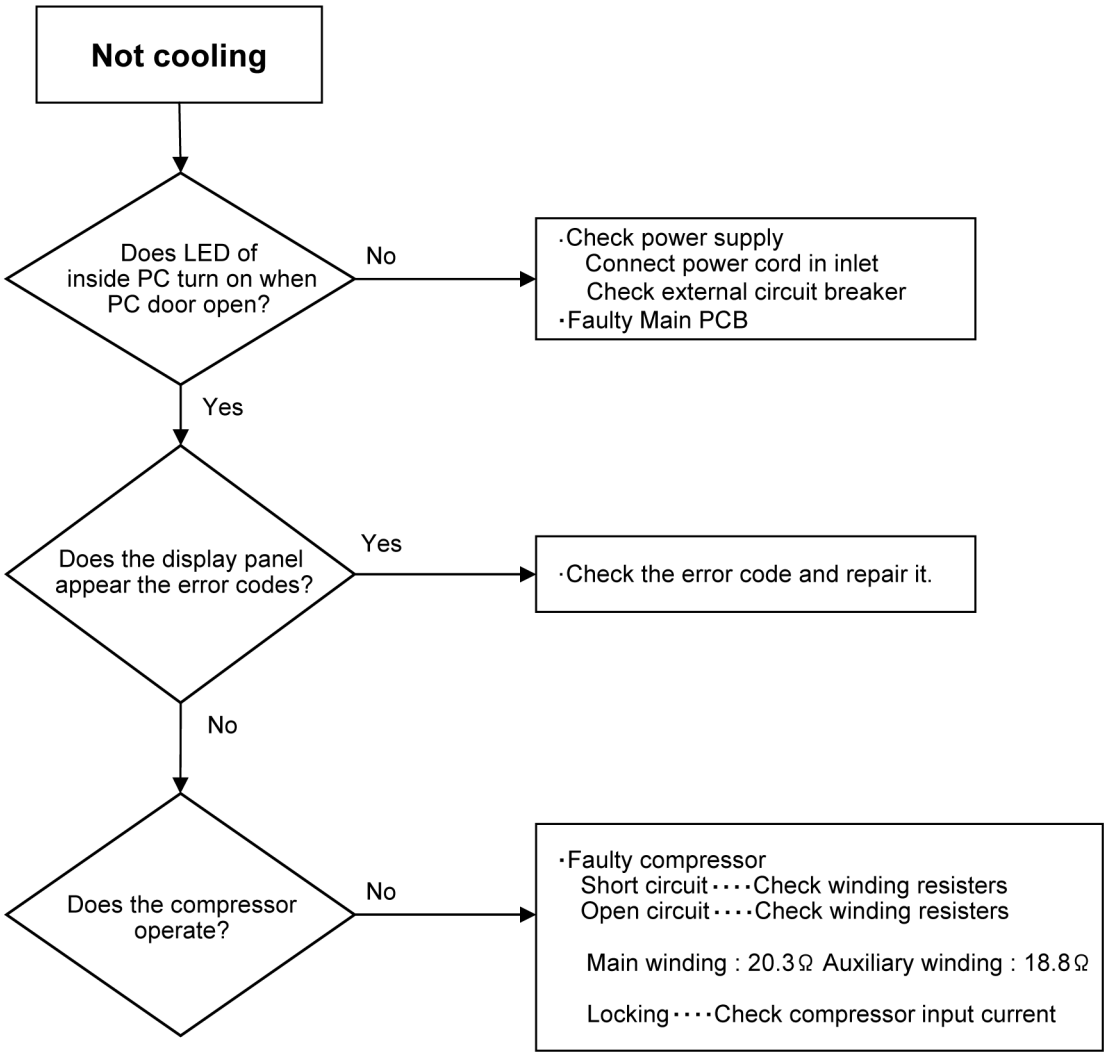
Error "E1" is shown on temperature display in fridge compartment. For models with single-digit display, the display alternately shows the errors: 1 second "E", 1 second "number" and 1 second zero.

Error E3 is shown on freezer compartment temperature display.

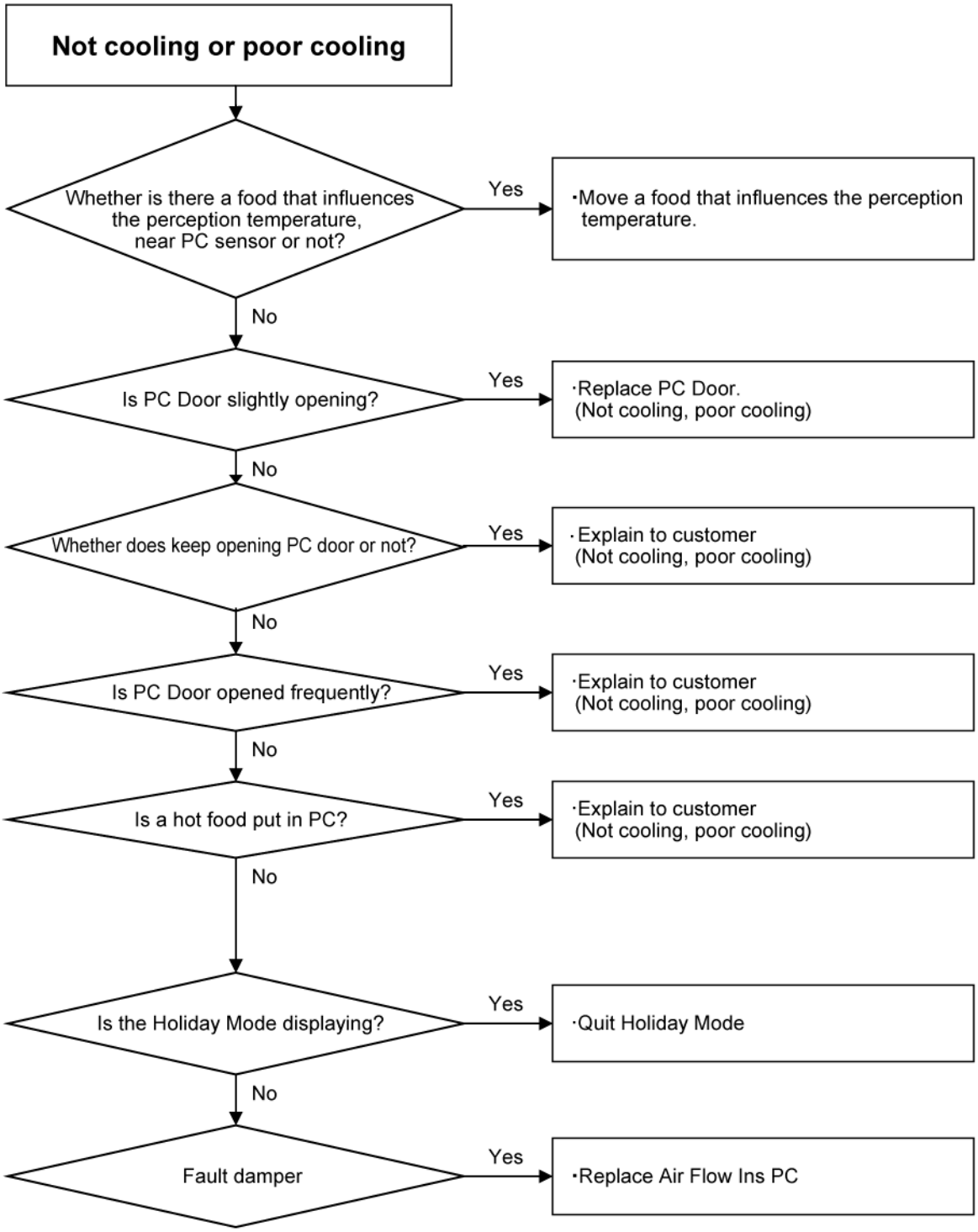
Error "E0": on models with two displays it is shown on fridge and freezer compartment temperature display.
For models with single-digit display, the display alternately shows the errors: 1 second "E", 1 second "number" and 1 second zero.

8 Troubleshooting Guide

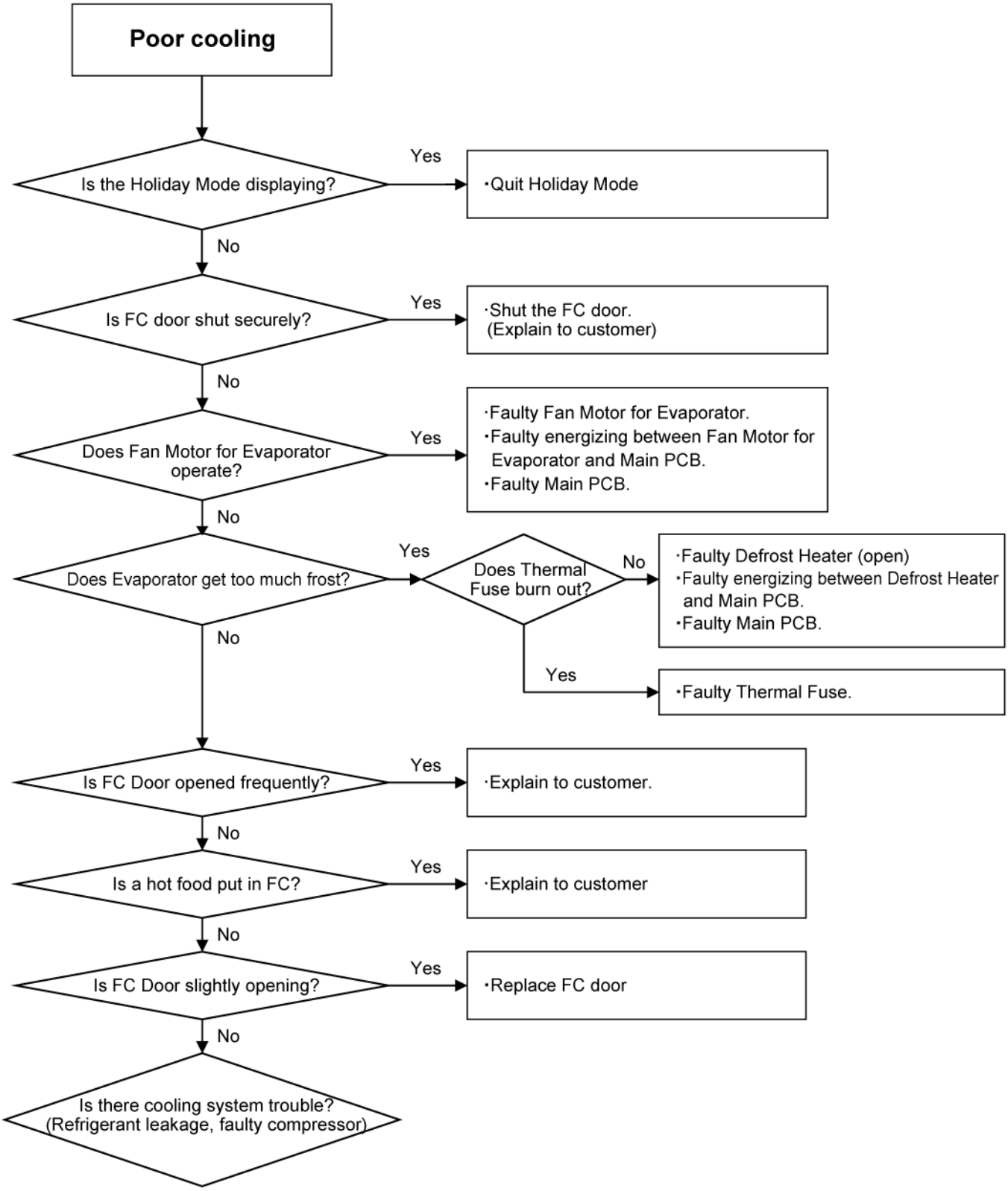
8.1. Not cooling at all [Both PC & FC (compressor does not operate)]



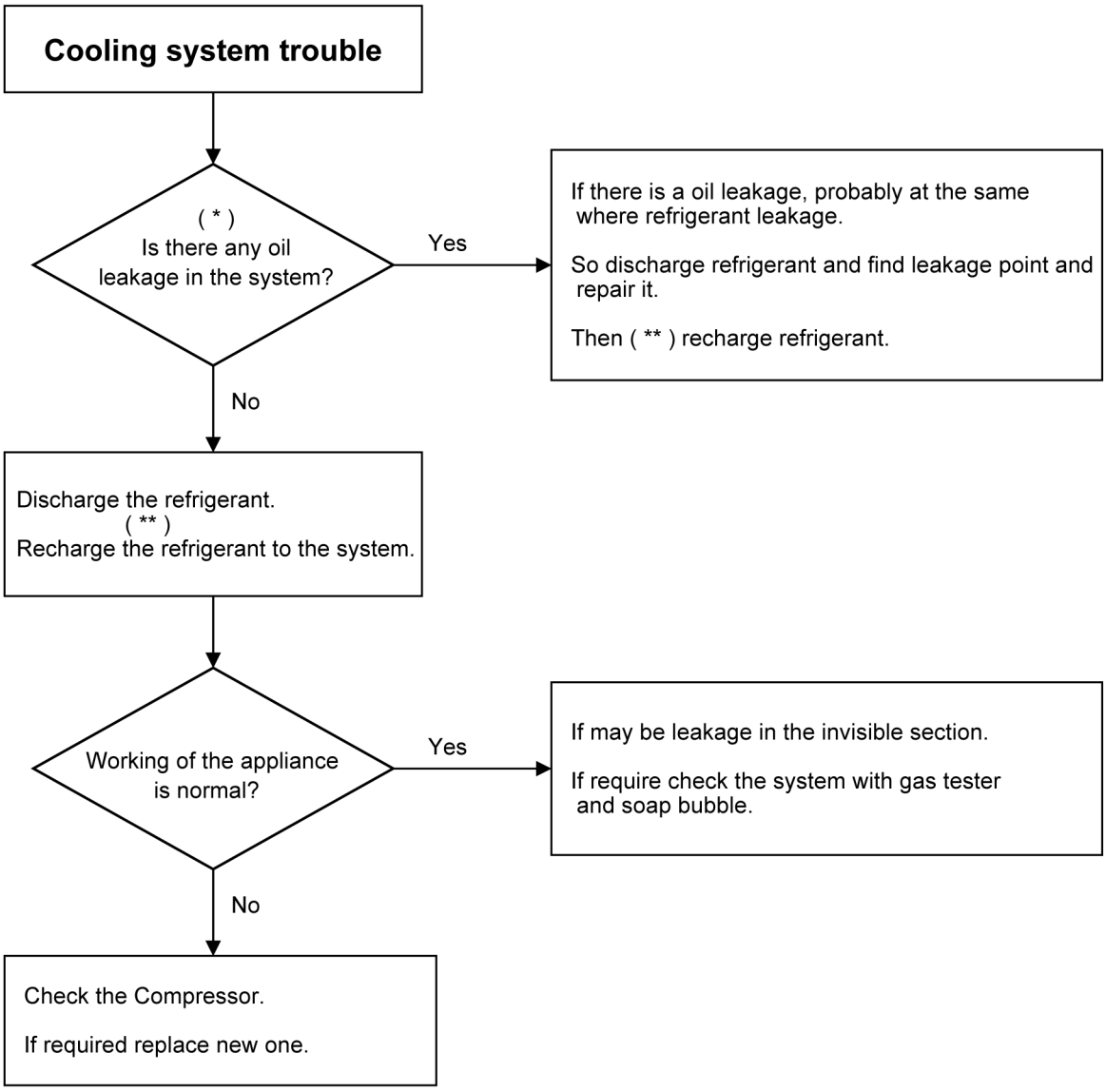
8.2. PC is not cooling or poor cooling. [FC cooling condition is normal]



8.3. FC is not cooling. [Compressor operate]



8.4. Cooling system trouble.


Cooling system trouble
(*)
Is there any oil leakage in the system?
Yes
If there is a oil leakage, probably at the same where refrigerant leakage.
So discharge refrigerant and find leakage point and repair it.
Then (**) recharge refrigerant.
No
Discharge the refrigerant.
(**)
Recharge the refrigerant to the system.
Working of the appliance is normal?
Yes
If may be leakage in the invisible section.
If require check the system with gas tester and soap bubble.
No
Check the Compressor.
If required replace new one.

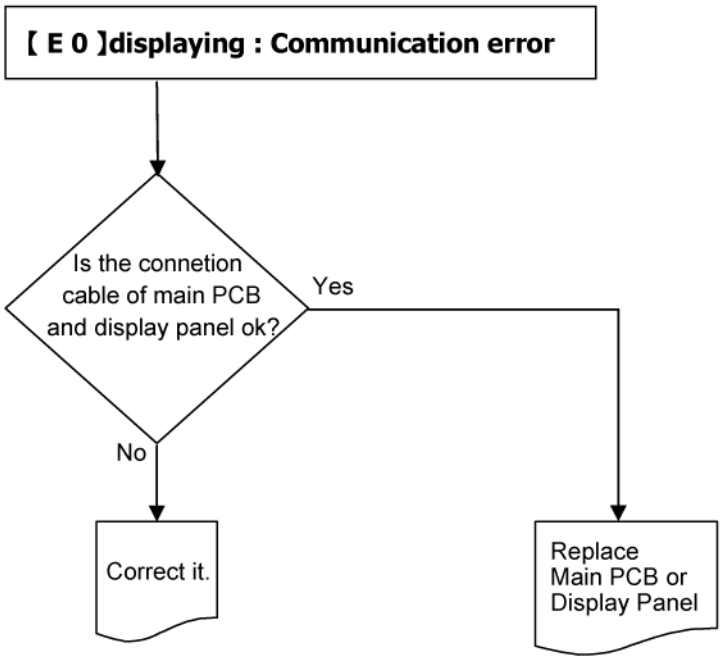
(*) Check all of the visible pipes and welding points against oil leakage.

(**) Before recharging the refrigerant to the system; Dryer must be replaced and at least 30 minutes vacuum must be done.

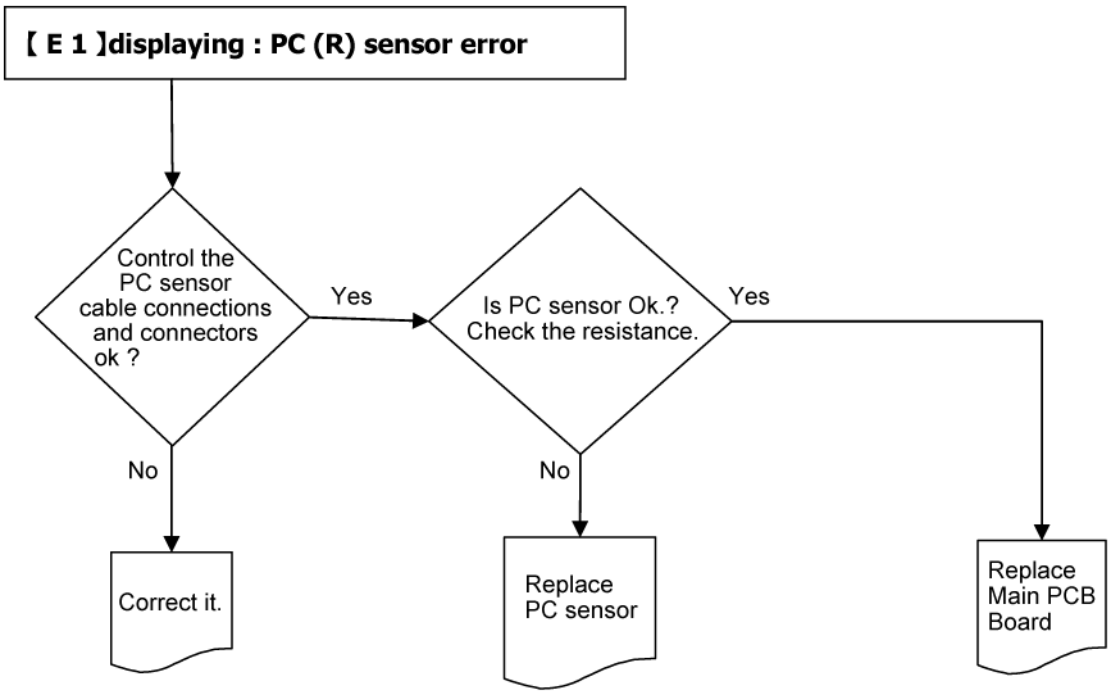
(***) The motor is used for this compressor , Individual winding resister are as follows.

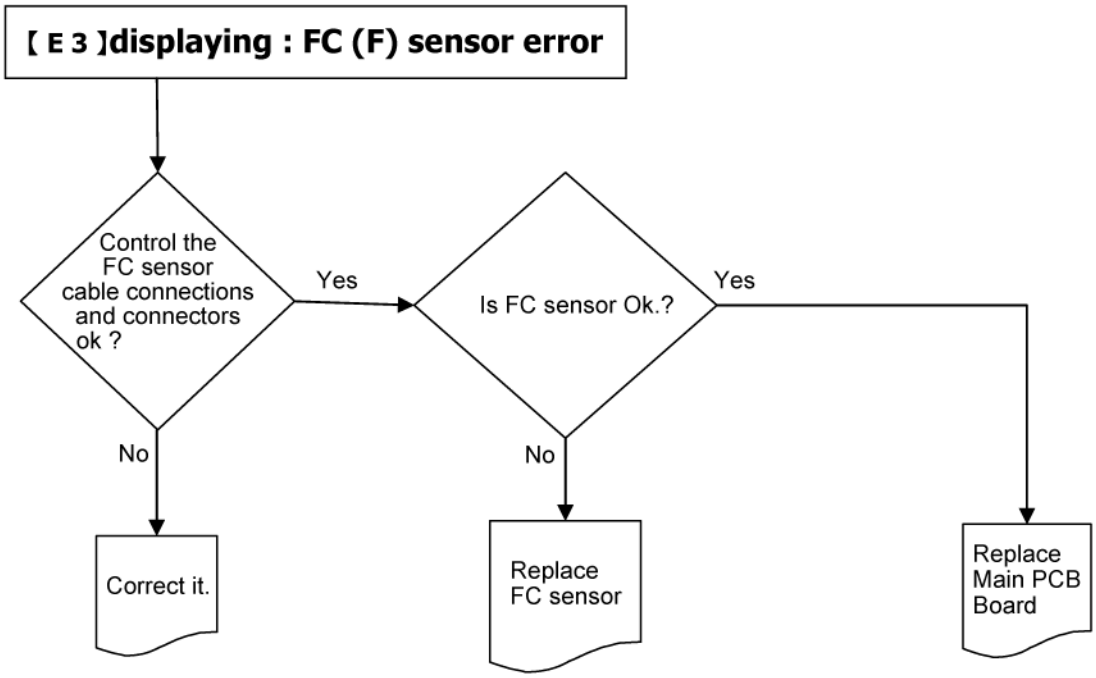
Main winding : 20.3Ω Auxiliary winding : 18.8Ω

8.5. Communication trouble.


【 E 0 】displaying : Communication error
Is the connetion cable of main PCB and display panel ok?
Yes
No
Correct it.
Replace Main PCB or Display Panel

8.6. Temperature sensor trouble.





Value of Temperature sensors

T (℃)	R (kΩ)
-35	122,80
-34	115,10
-33	108,00
-32	101,20
-31	95,03
-30	89,24
-29	83,83
-28	78,79
-27	74,09
-26	69,70
-25	65,58
-24	61,75
-23	58,32
-22	54,81
-21	51,66
-20	48,72
-19	45,97
-18	43,39

T (℃)	R (kΩ)
-17	40,96
-16	38,69
-15	36,56
-14	34,56
-13	32,68
-12	30,92
-11	29,25
-10	27,70
-9	26,24
-8	24,85
-7	23,55
-6	22,33
-5	21,18
-4	20,09
-3	19,07
-2	18,10
-1	17,19
0	16,33

T (℃)	R (kΩ)
1	15,52
2	14,75
3	14,02
4	13,33
5	12,69
6	12,07
7	11,49
8	10,94
9	10,43
10	9,93
11	9,47
12	9,03
13	8,61
14	8,21
15	7,84
16	7,48
17	7,14
18	6,82

T (℃)	R (kΩ)
19	6,52
20	6,23
21	5,95
22	5,69
23	5,44
24	5,21
25	4,98
26	4,77
27	4,57
28	4,38
29	4,19
30	4,02
31	3,85
32	3,69
33	3,54
34	3,39
35	3,26

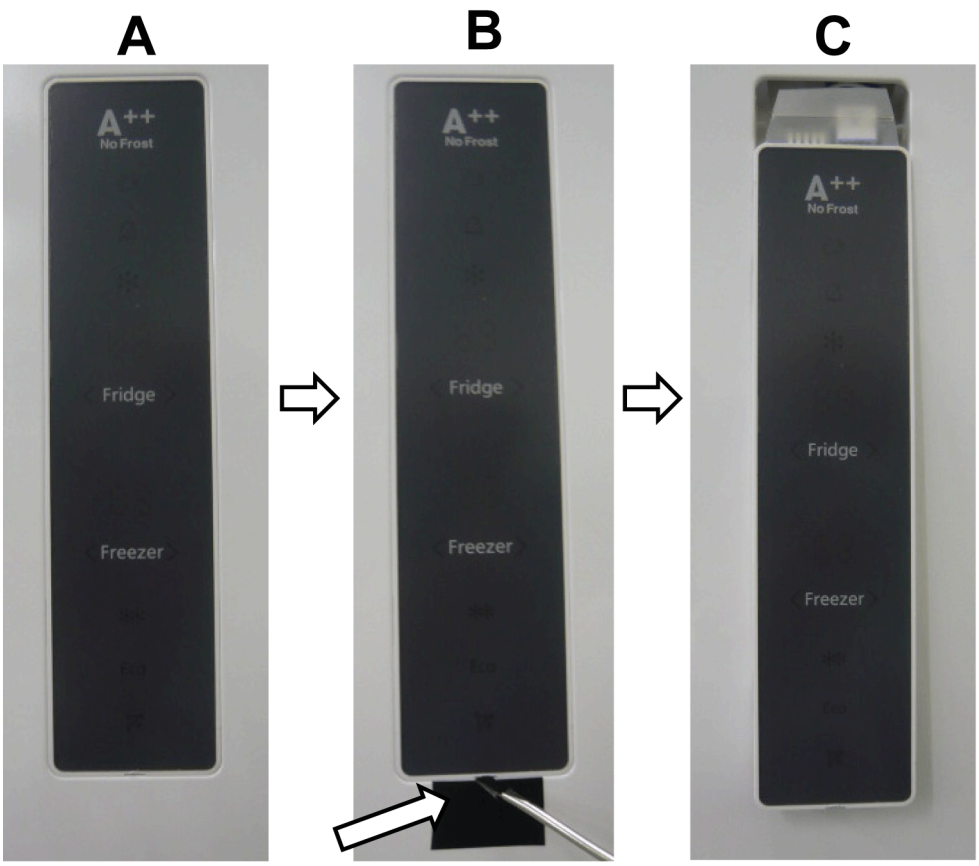
9 Disassembly and Assembly Instructions

9.1. Display Panel A’ssy (Display and Control Panel)

Before taking any action, please unplug the power supply.
To separate Display Panel A’ssy from the door, insert flat screw driver (picture B) into the small opening on the down side in the middle of Display Panel A’ssy. Before you do that please protect the door with scotch tape. Carefully lift the screw driver to detach the Display Panel A’ssy. Be careful not to damage cable with connector.

On the control unit there are two terminal connectors. Right one is for connecting Display Panel A’ssy with power board. Left is for uploading SW (optional).

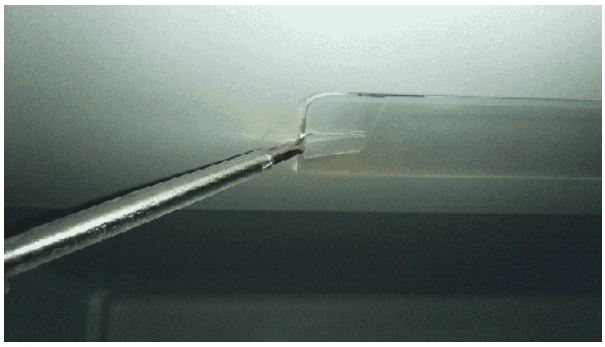
NB! Please wear electrostatic discharge wrist band



9.2. LED Lamp PC

1. LED Lamp is installed at the ceiling of PC

2. Unhook the hook and push the LED cover to the left.



3. Remove LED Lamp Assy and disconnect the connector.

9.3. Main PCB

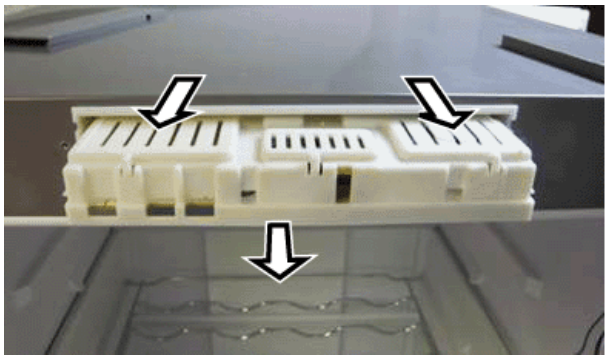
1. Main PCB is installed at the upper side of refrigerator.

2. Slide both the Head Panel Cover R and the Head Panel Cover L to remove.

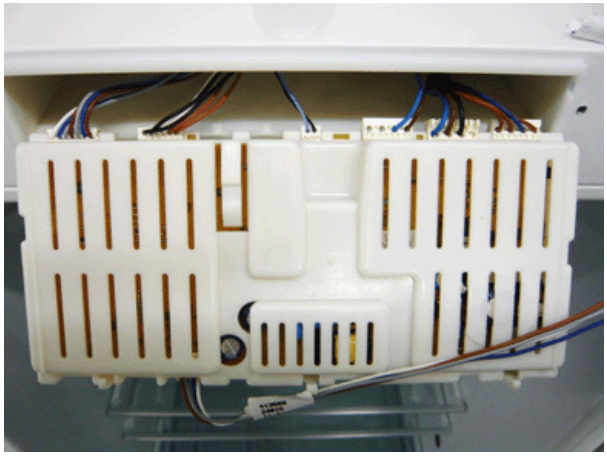
3. Unscrew the two screws fixing the Head Panel Cover Center and remove it.

4. Disconnect the connector.

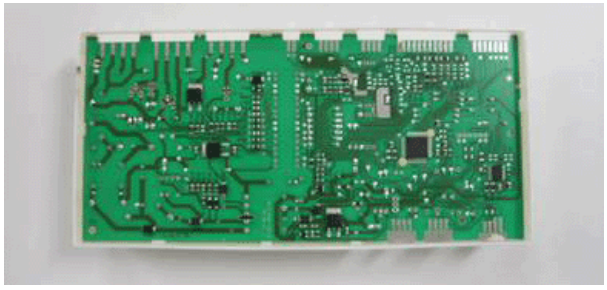
5. While unhooking the rib at the upper center of PCB box by inserting the screwdriver, draw out the PCB box toward you.



6. Unhook the connector's hook, then disconnect the connectors.



7. Main PCB Assy (Main PCB with PCB box)

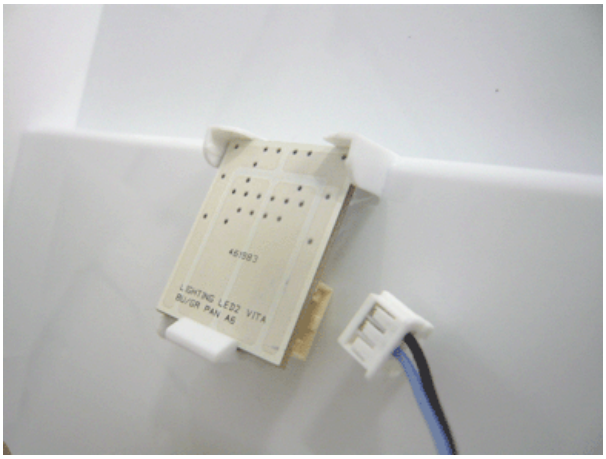


9.4. Air Flow Ins. PC

1. First, remove the Glass Shelves, Bottle Support and Drawers, then unscrew the two screws.

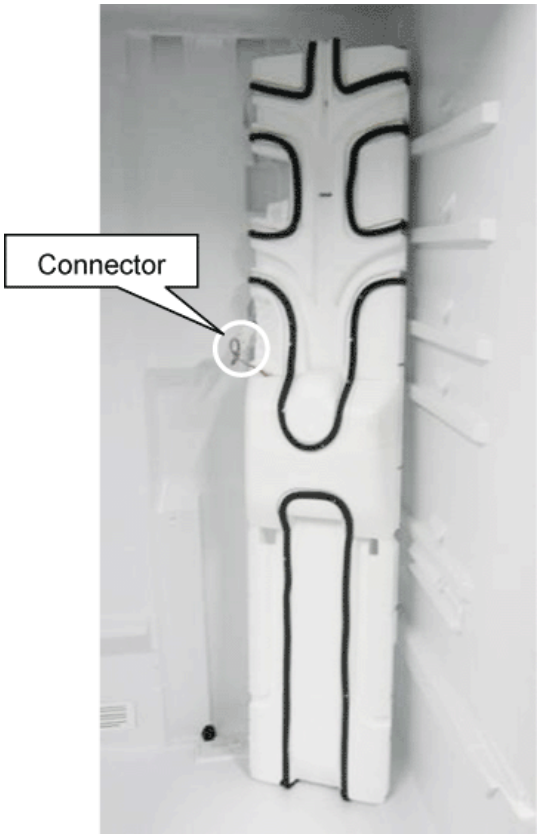
2. Remove the PC Air Duct Lower.

3. Disconnect the connector of Vitamin LED.



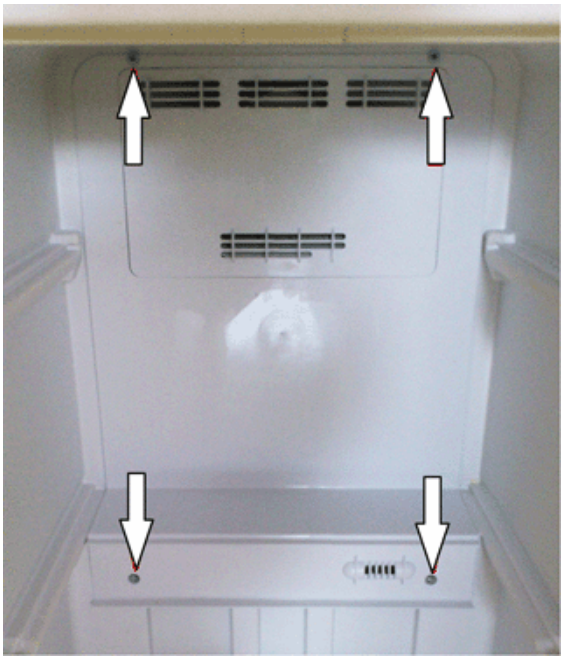
4. Remove the PC Duct Upper, then the Air Flow Ins. PC can be seen.

5. Pull the Air Flow Ins. PC slightly from the left side, then the connector of Air damper can be seen.



9.5. Fan Assy

1. First, remove the FC Drawers, then unscrew the four screws.

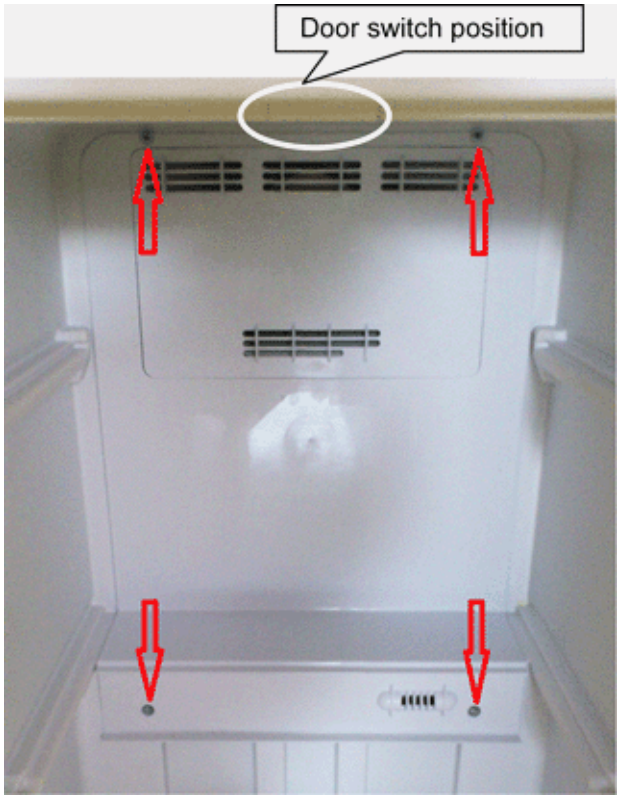


2. Pull the FC Air Duct Cover toward, then the connector of Fan Motor can be seen.

3. Unhook the six hooks at the back side, then remove the FC Air Duct Cover.

9.6. Door Switch FC

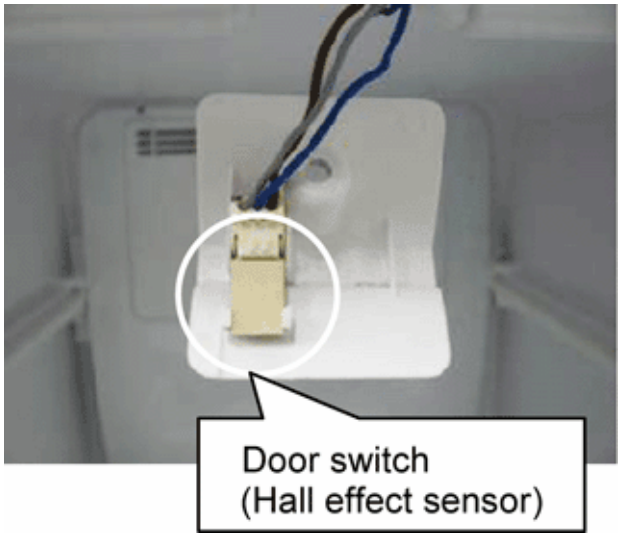
1. First, remove the FC Drawers,



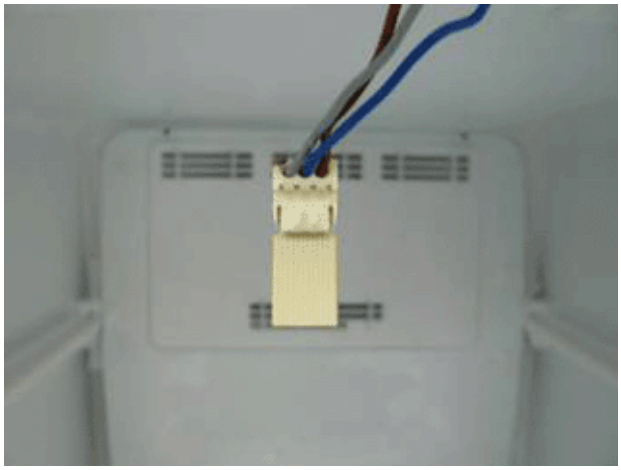
2. Unscrew the screw fixing the Door Switch Cover.

3. Open the Door Switch Cover.

4. Unhook the hook, then remove the Door Switch FC.

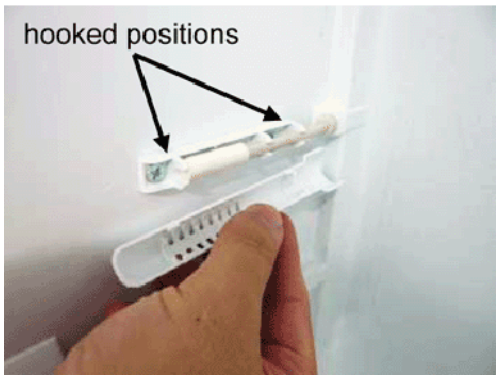


5. Disconnect the connector.



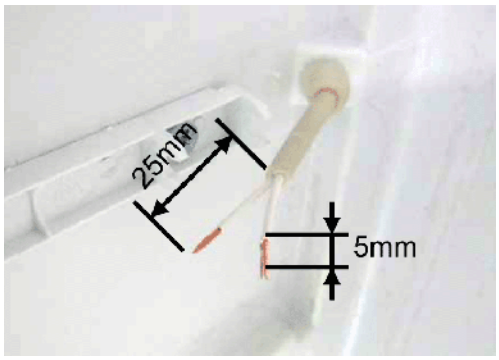
9.7. Replacement of PC temperature sensor

1. Release the latches by screwdriver and remove the cover by hand.
   Note: The sensor cover is hooked at two position as shown in the photo.



2. Cut off the damages sensor at the base of sensor head.

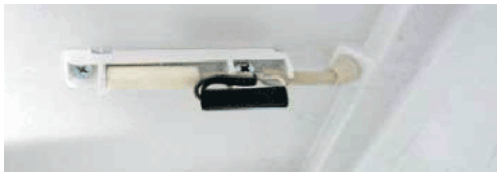
3. Strip off approx. 25mm of additional cable insulation and 5mm of basic insulation of the conductor.



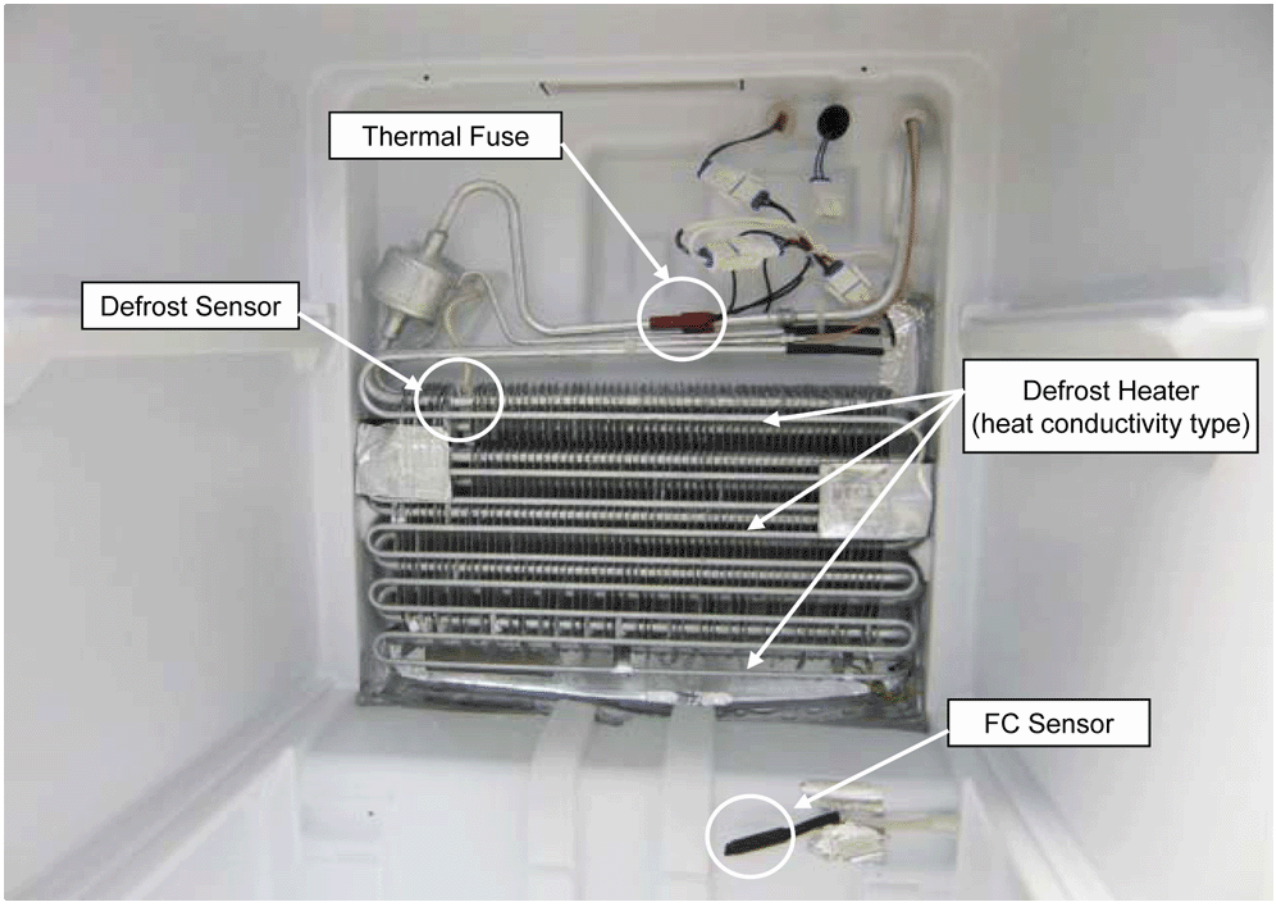
4. First crimp the enclosed end splices on conductor of the new sensor.
   Place the enclosed thermo-shrinkable bushing.
   Crimp end splices on conductors of cut cable.

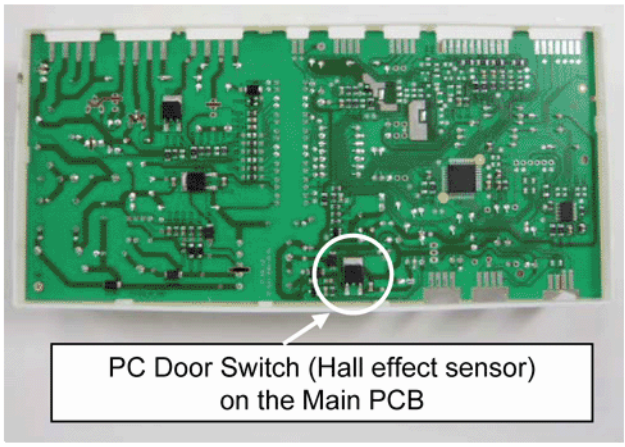
5. Use hair dryer and heat the bushings so that they tightly wrap the conductors and prevent moisture from breaking through the joint.

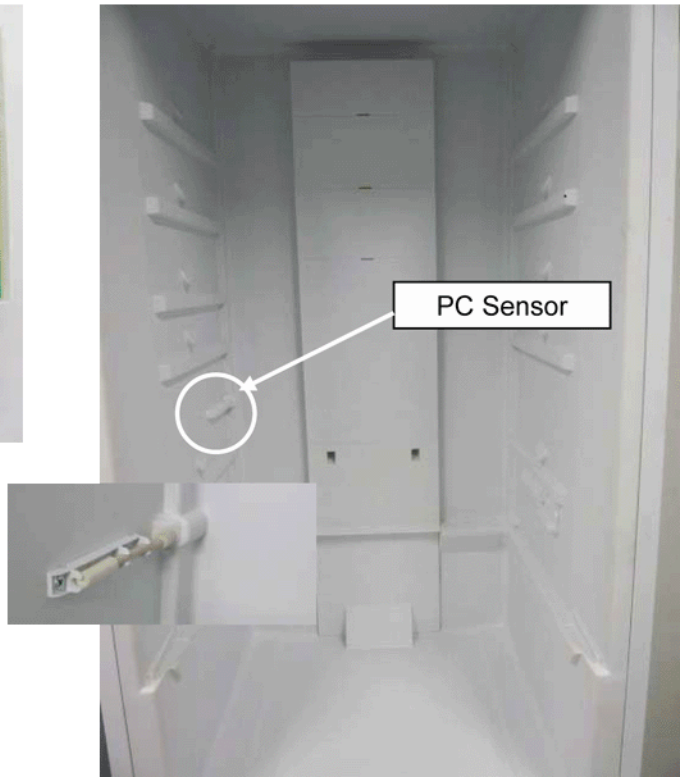
6. Place the sensor into its seat and replace the sensor cover.



9.8. Positions of Temperature Sensors, Thermal Fuse, Defrost Heater and PC Door Switch



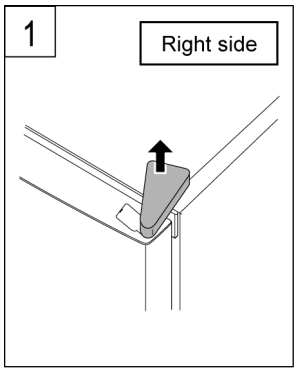




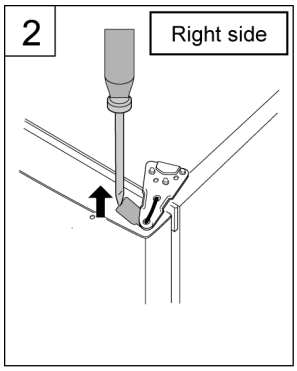
9.9. Changing The doorway Direction

Warning: Make sure the unit is unplugged

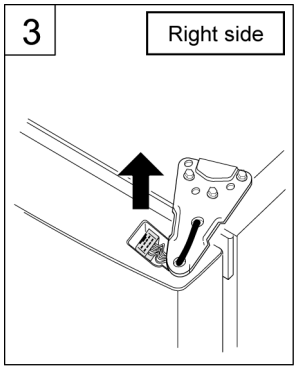
1. Remove the Hinge Cover Upper.



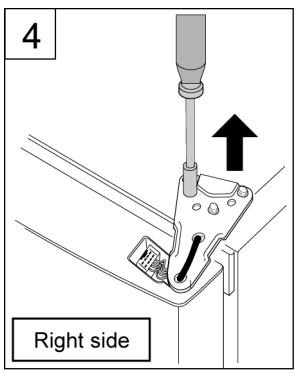
2. Remove the PC Door Edge Cover Left.



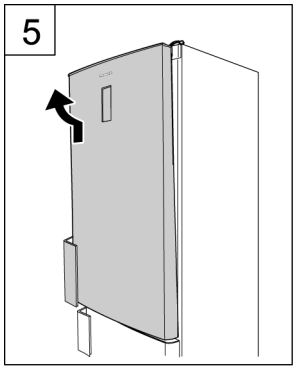
3. Disconnect the Display Connector.



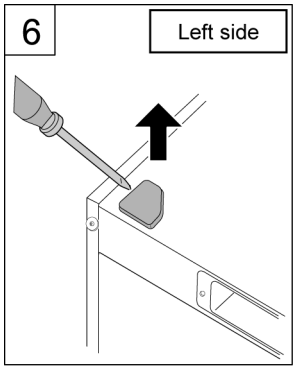
4. Unscrew the screws fixing the Upper Hinge.



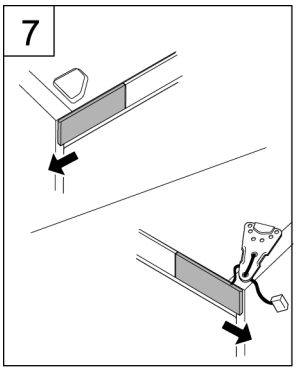
5. Remove the PC Door.



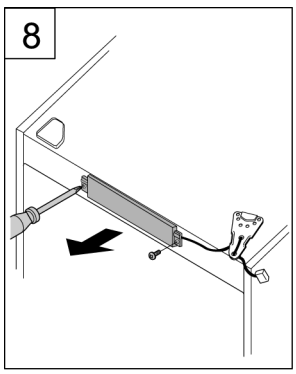
6. Remove the PC Hinge Cover VC.



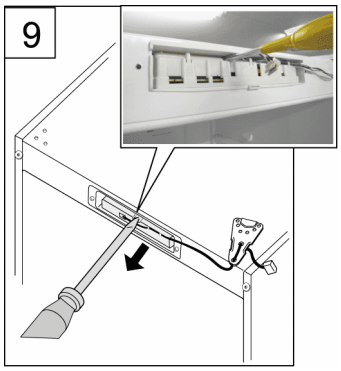
7. Slide the Head Panel Cover Right and Head Panel Cover Left then remove its.



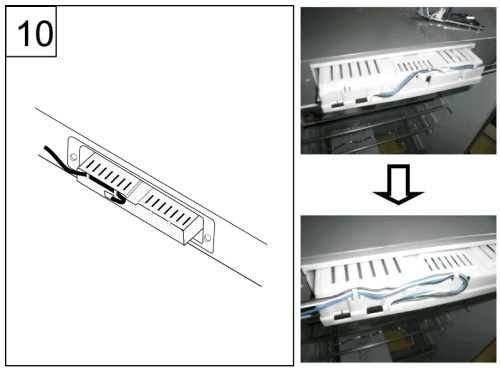
8. Unscrew the screws fixing the Head Panel Cover Center and remove it.



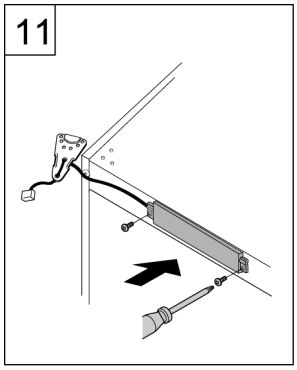
9. While unhooking the rib at the center of PCB box by using the screwdriver.



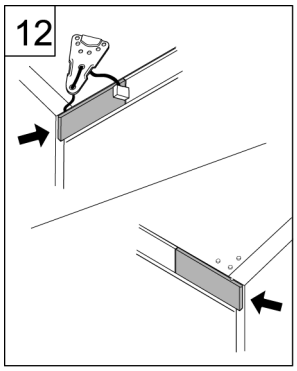
10. Draw out the PCB box toward you and change the electric wire direction.



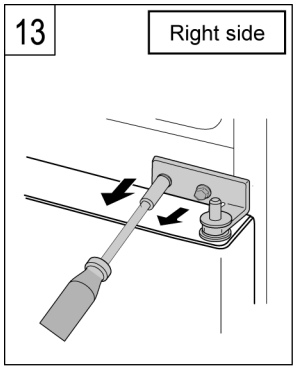
11. Screw the screws fixing the Head Panel Cover Center.



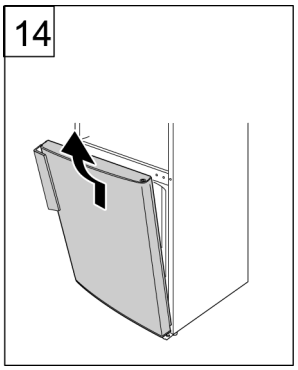
12. Slide the Head Panel Cover Left and Head Panel Cover Right then fix it.



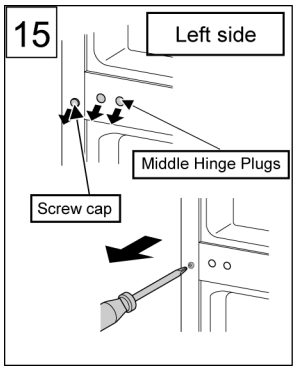
13. Unscrew the Middle Hinge fixing screw and remove it.



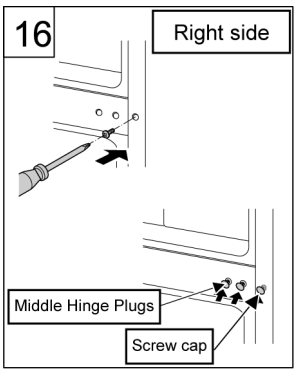
14. Remove the FC Door.



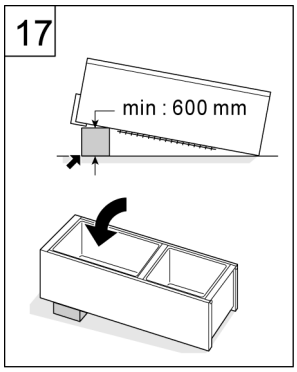
15. Remove the Middle Hinge Plugs and the Screw cap then unscrew the screw.



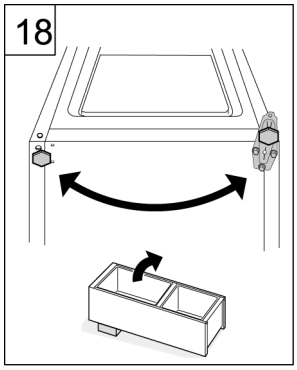
16. Screw the screw.
Install the Middle Hinge Plugs and the Screw cap.



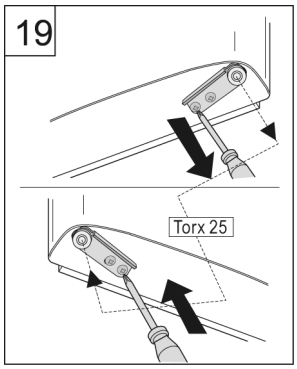
17. Lie down the appliance to the back. (min 600mm) **CAUTION: Do not damage the outer condenser.**



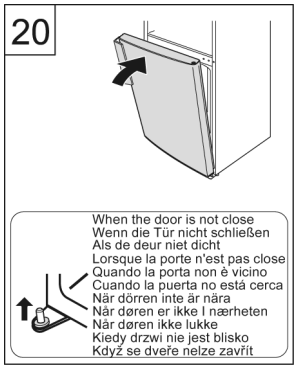
18. Replace the Levelling Leg Right with the Lower Hinge and the Levelling Leg Left. Then raise the appliance.



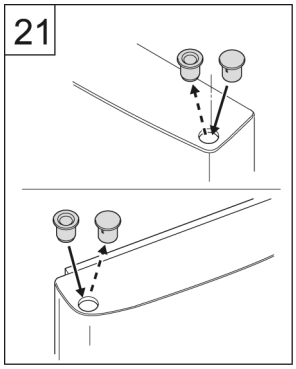
19. Remove the FC Door Limiter Right, then install FC Door Limiter Left. (You can find the FC Door Limiter Left in the user manual bag)



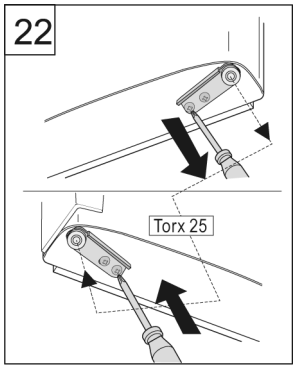
20. Assemble the FC Door.


20
When the door is not close
Wenn die Tür nicht schließen
Als de deur niet dicht
Lorsque la porte n'est pas close
Quando la porta non è vicino
Cuando la puerta no está cerca
När dörren inte är nära
Når døren er ikke I nærheten
Når døren ikke lukke
Kiedy drzwi nie jest blisko
Když se dveře nelze zavřít

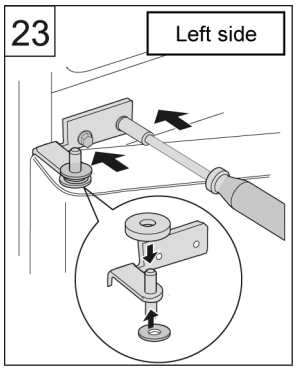
21. Replace the Door Bushing and the FC Door Plug.



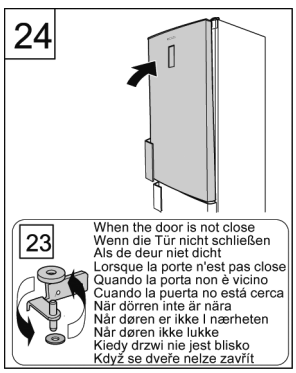
22. Remove the PC Door Limiter Right, then install PC Door Limiter Left. (You can find the PC Door Limiter Left in the user manual bag)



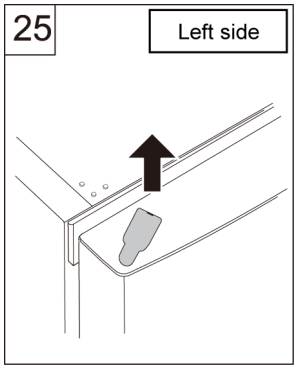
23. Turn the Middle Hinge upside down and screw it. The thick washer on the downside.



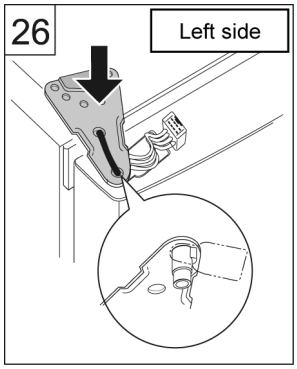
24. Install the PC Door.


24
23
When the door is not close
Wenn die Tür nicht schließen
Als de deur niet dicht
Lorsque la porte n'est pas close
Quando la porta non è vicino
Cuando la puerta no está cerca
När dörren inte är nära
Når døren er ikke I nærheten
Når døren ikke lukke
Kiedy drzwi nie jest blisko
Když se dveře nelze zavřít

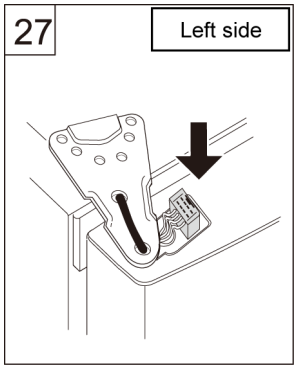
25. Remove the PC Door Edge Cover Left.



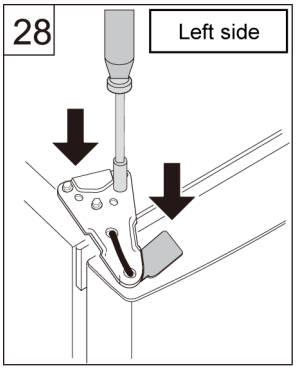
26. Install the upper Hinge.



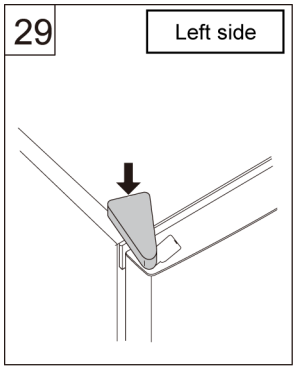
27. Connect the Display Connector.



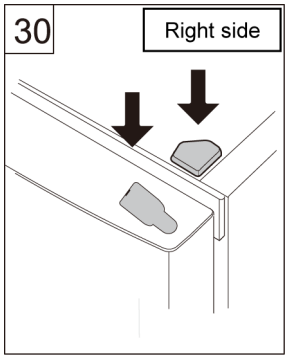
28. Screw the Upper Hinge fixing screws.



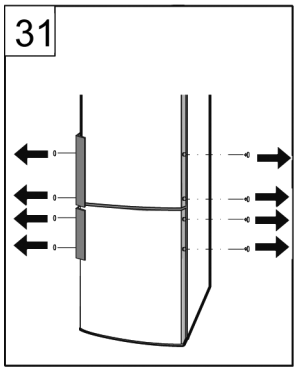
29. Install the Hinge Cover.



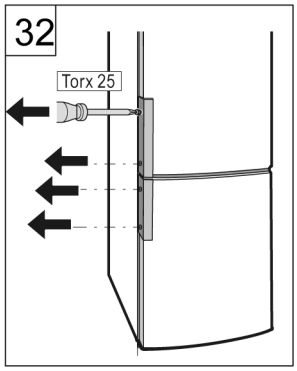
30. Fix the Hinge Cover VC and the PC Door Edge Cover Right.



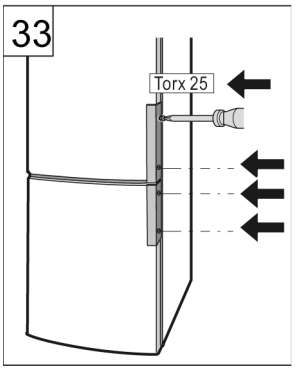
31. Remove the Filling Plugs.



32. Unscrew the Handles fixing Torx screws using the Torx screwdriver.



33. Screw the Handles to the right side.



34. Install the Filling Plugs to the left side.